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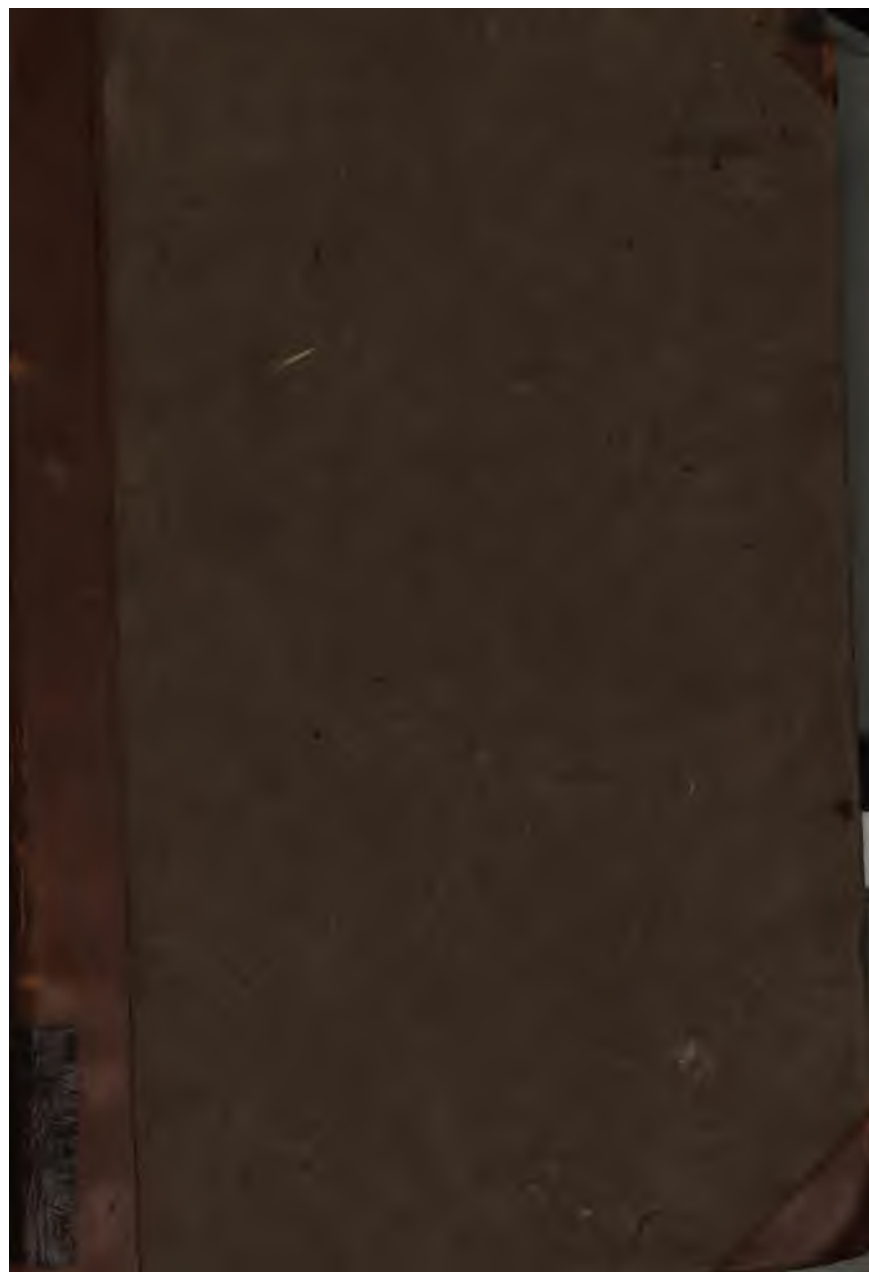
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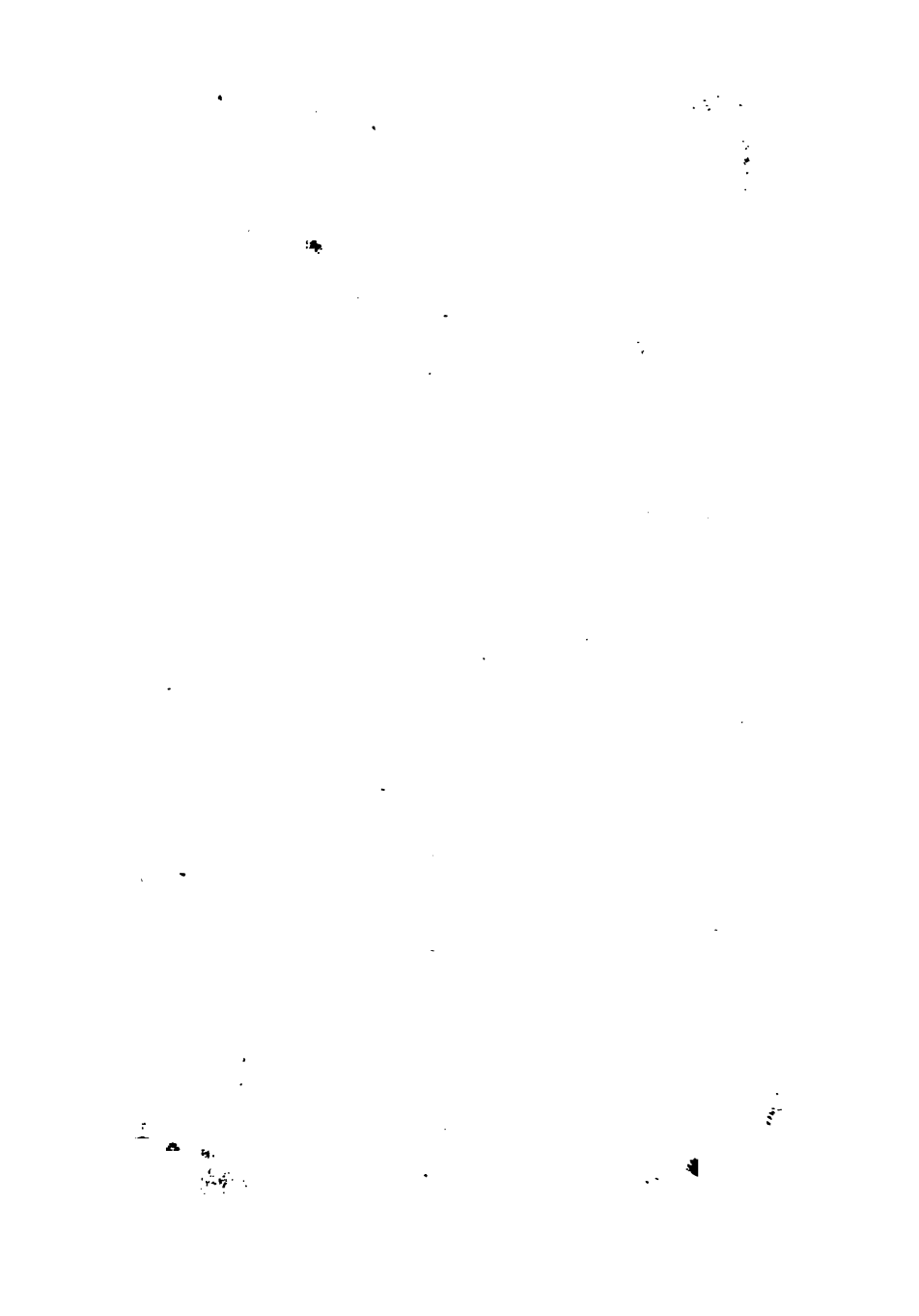
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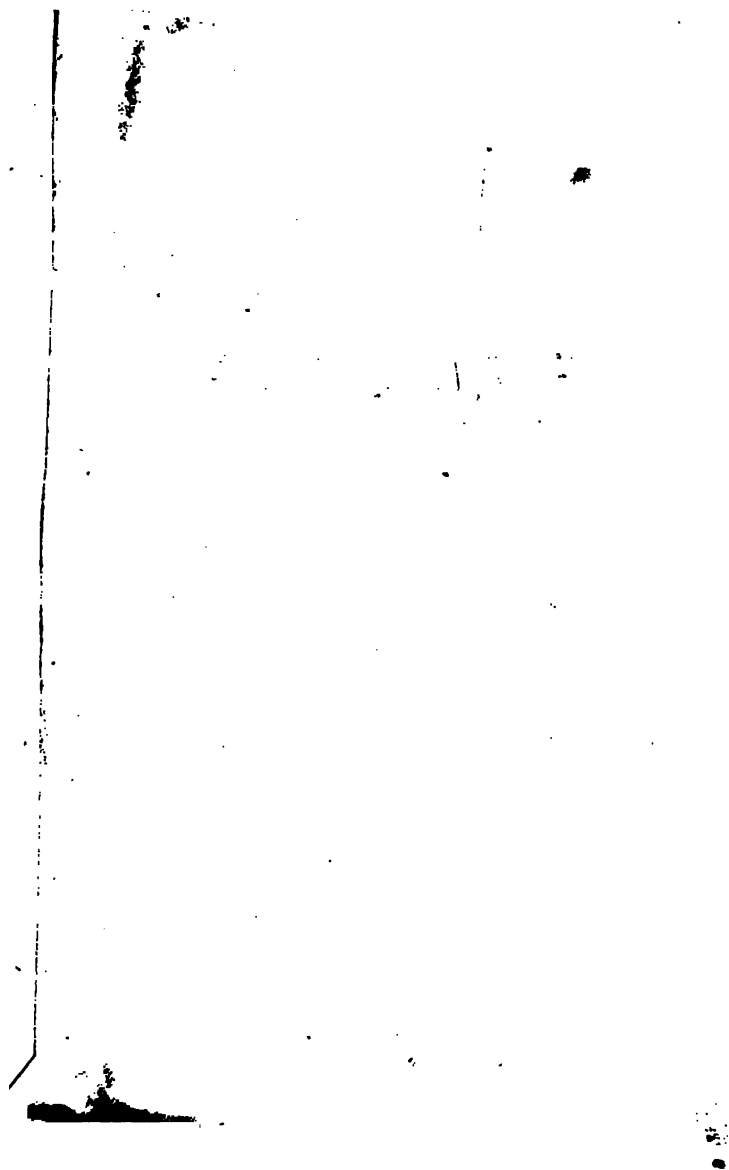
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The Art of  
**GRAVING**  
AND  
**ETCHING.**

Wherein is express'd the true way of  
Graving in COPPER.

Also the Manner and Method of the  
Famous *CALLOT*, and Mr. *BOSSÉ*,  
in their several-ways of *Etching*.

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Published by *William Faithorne*.

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The Second Edition.

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To which is added, the way of Printing  
*Copper-Plates*, and how to make the  
Press.

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L O N D O N,  
Printed for *J. Roper*, at the *Black-Boy*,  
over against *St. Dunstan's Church* in  
*Fleetstreet*, 1702.

170. m. 106



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*To the Lovers of this*  
**A R T.**

**I** Have had the thoughts oft-times to Publish this ensuing Treatise of *Graving* and *Etching*, because it hath arrived to such an height, in these our latter Times, as it becomes a fit Subject for our Kingdoms Knowledge and Practice. We need no other Witnessees to confirm this Truth, than the Works of those famous Masters, the *Sadlers*, *Goltzius*, *Bleu-mart*, *Mellan*, *Natalis*, *Pontius*, *Poilby*, &c. And as for *Etching*, we are obliged to that Renowned *Callot*, and his Disciple *Bosse*; who hath not only Practised, but also hath been so Courteous as to discover, in the *French* Tongue, this Art unto his Country Men. I have used him as an Author in this Work, yet I have not traced him so closely as to make it a meer Translation; but added something, making use of what I thought necessary:

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So



*To the Lovers of this Art.*

So as ( I hope ) I am neither so tedious as to be Troublesome, nor so short as to be Obscure.

I shall not Trouble my self to speak the Commendation of this Art, but ( those that may seem to detract from it ) give me leave only to say thus much, that the result of *Ayre*, the Symetry of *Par*, the exact harmony of *Proportions*, *Lights* and *Shadows*, may be perform'd to the height in *Graving*. Therefore Recommend it to Publick View, hoping of its fair Reception by all Lovers of *Arts*; which is the utmost Aim and Expectation of

M. C

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**T H**

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# The Art of Graving.

with *Aqua fortis*.

§. I. *How to make the hard Varnish for engraving with Aqua fortis.*

**T**ake five ounces of Greek pitch, or ( for want of that ) Burgundypitch, five ounces of Rozin of Tyre, or *Coleofonium*, or for want of that ) ordinary Rosine : Melt them together upon a gentle fire in a new earthen pot, well varnished, or leaded, and being very clean : Theſe two things being firſt melted, and well mixt together, put into them four ounces of the beſt Nut Oyl ; mix them well together upon the ſame fire the ſpace of a full half hour, and let them boyl well ; Then let this mixture cool a little upon a ſofter fire ; and afterwards, touching it with the end of your finger, it will rope ( if it be boyled enough ) like a glewy Syrup. Then take the pot from the fire, and ( the varniſh being a little more cooled ) ſtrain it through a fine Linnen cloth, or Taffata, into a well varnished earthen pot ; or elſe put it into any thick glaſſe bottle, or any other thing that will not drink it up, and ſtop it well. Varniſh thus made will laſt twenty years, and it will be the better the longer it is kept.

It is reported of *Monſieur Callot*, that he had his varniſh ſent him ready made from *Italy*, which was made there by the Joyners, who uſed it to vat-

nish their work: They called it *Vernice, grosse de Ligne* namely: He gave some to the Author, which he used a long time, but since made use of the varnish when of you have a description before.

*Sect. 2. How to make the composition or mixture of grease and oyl, to cover those places in your plate, where you would not have the Aqua fortis to eat in.*

**T**AKE an earthen porringer well leaded; put into it a quantity of Sallad oyl, and set it on the fire, and when the oyl is hot, put into it a quantity of Candles-grease; when that is melted, take a pencil and dip it in, and let a drop or two fall on a plate, or any cold hard thing; and if the drops be a little hardened and firm, it sheweth that the mixture is well made. For you may judge, that if it is too liquid, it is because there is too much oyl; and if so, then you must put in more grease; and by the same reason, if it be too hard, you must put in more oyl: having made it in this manner, boyl it well the space of an hour, that the oyl and the grease may be well mixed together, and that you may perceive them of a reddish colour, otherwise they will be apt to separate, when you should use them.

The reason why you melt the oyl, and the grease together, is to make the grease more liquid, and not cool too fast: for should you melt the grease alone, you shall no sooner take it up with the point of your pencil to carry it to the place where you would use it, but it will grow cold.

Put in a greater quantity of oyl in Winter, than in Summer.

*Sect. 3.*

with Aqua fortis.

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3. *How to prepare the Ingredients for making the Aqua fortis for the hard varnish.*

The *Aqua fortis* is made of Vinegar, Salt Armoniack, Bay-salt, and Vert de griz.

The Vinegar must be of the best sort of white-wine Vinegar; but if it be distilled, it is the better, and not so subject to break up the varnish.

The Salt Armoniack must be clear, transparent, white, pure, and clean.

The Bay-salt must be also pure and clean.

The Vert de griz must be clean, and free from any scrapings of brasse.

The Salt Armoniack and Vert de griz are commonly sold at the Druggists.

Sect. 4. *How to make this Aqua fortis.*

TAke three pints of Vinegar, six ounces of Salt Armoniack, six ounces of Bay salt, and four ounces of Vert de griz; or of each according to this proportion, as you will make your quantity more or lesse: put them all together in an earthen pot well varnished, large enough, that it may not boyl over: Cover the pot, and put it on a quick fire, and let it speedily boyl two or three great walmes and no more: When you perceive it ready to boyl, and not before, uncover the pot, and stirre it with a little stick sometimes, and take heed that it do not boil over: Having thus boyled it two or three great walmes, take off the pot from the fire, and let it cool; but keep the pot covered; and



### *The Art of Graving*

when it is cold poure it into a glasse bottle, and  
it stand stopp'd a day or two before you use it: and  
if you shall find it too strong in the etching, put  
into it a glasse or two of the same Vinegar y  
made it of.

#### *Sect. 5. How to know good Copper from bad.*

**C**opper is best for graving with a Graver,  
*Aqua fortis*; Brasse is too brittle. That Copp  
is best which is free from flaws, and not too hard  
which you may perceive by its yellowish colour,  
most like brasse: & if it be too soft, you may know  
what perceiv it by its too much pliability in ben  
ing. When you are to make use of it, you shall per  
ceive ( in that which is good ) a firm, yet easie for  
in the entring of your graver: and that Copp  
which is best for graving, is also best for etching.

#### *Sect. 6. How to planish and polish your Plate.*

**H**ere in *England* you must buy your Copper re  
dy forged from the Brasiers.

It is not necessary, that they which desire to e  
grave should forge and polish their Copper the  
selves; but because in divers places there is n  
conveniency of having it ready polished, I ha  
thought fit to set down the manner how it may  
done.

Those Plates which you intend to forge and pl

*with Aqua fortis*

nish, must be fully as thick as a half-crown, because in their forging and planishing they will come somewhat thinner. You must planish your Copper cold, as the Silver-Smiths do their Plate: And the more it is beaten or planished with an hammer, the firmer it is, and lesse subject to holes or flaws.

Your Plate being well planished, make choice of the smoothest side for polishing: Before you begin to polish it, fix it upon a board; and when you polish it, let your board (to which the plate is fixed) stand a little declining or sloping.

To polish your Plate, take a piece of a Grinding-stone about the bignesse of your fist, and fair water, and rub it firmly, and evenly all over; and in your rubbing throw water often on it, and continue so doing, till you cannot perceive any dints, or flaws, or marks of the hammer: Then wash it clean with water: Afterward take a good Pumice-stone, and rub the same Plate with it and water, till there appear none of the rough stroaks, or marks of the stone: Then wash it clean with water, as you did before.

Again, do the same thing with a fine smooth Hoan and water, till all the marks of the Pumice-stone are quite rubbed out: This done, wash it clean with fair water.

Then choose out a Chark-cole smooth, without any knors, or rough grain, and put it in a well-kindled fire: let it be there, till you may perceive it red hot; Then take it out of the fire, and immediately quench it in cold water; Then take it out, and pair off the uttermost rind, and

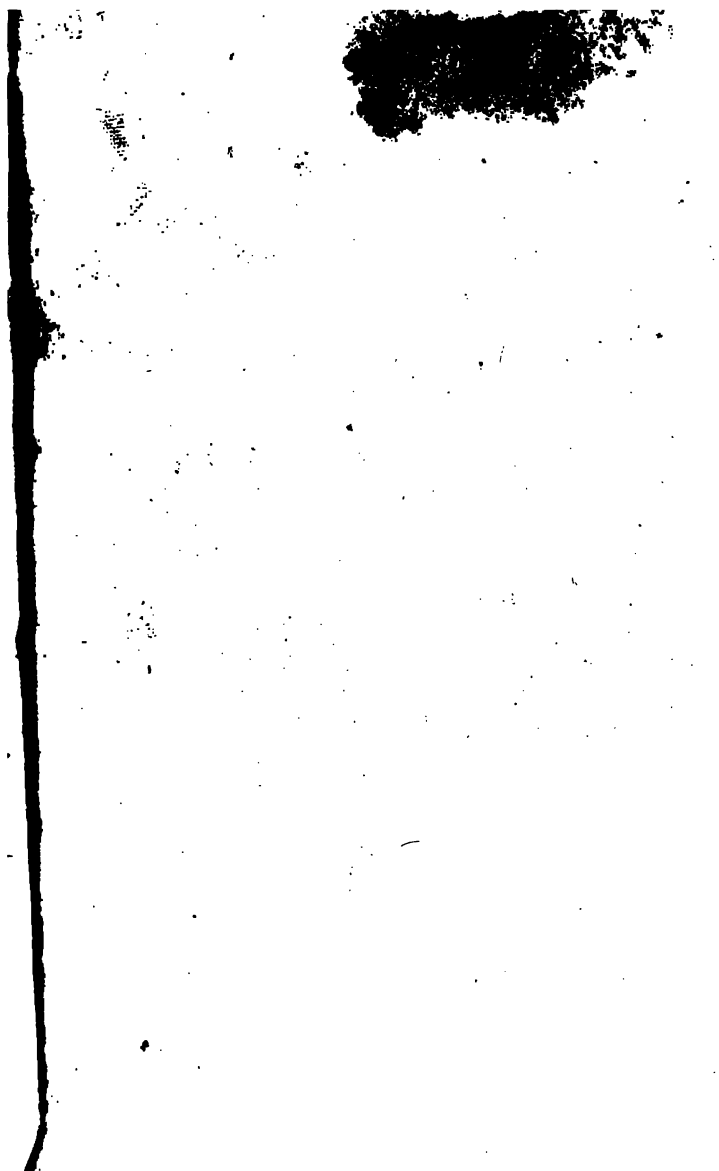
rub your Plate with it, and water, till all the small strokes of the Hone be rubbed out : If the cole be naught, it will only slide upon the Plate, and not rub out the strokes.

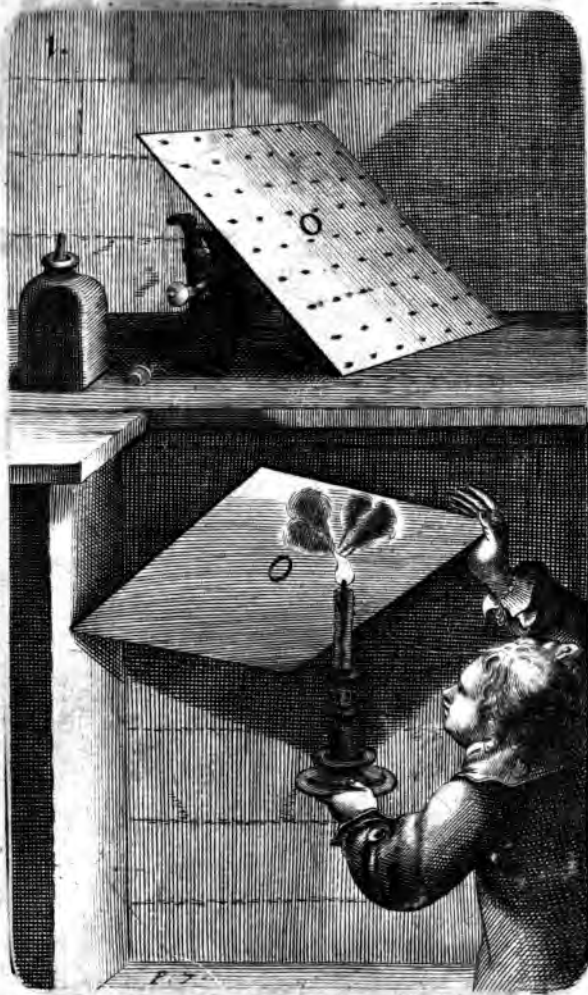
After you have thus polished it with a Chark-cole, if you perceive any small stroaks, or scratches on your Plate, then take a well-hardened piece of steel, made somewhat roundish at the end, which is commonly called a burnisher ; and with it rub those places firmly and evenly, where you perceive any strokes, or scratches. When you have done this, wash it clean, and dry it by the fire : and if by any accident your Plate be foul or greasie, take the crummes of stale bread, or fine-powdered Chalk, and rub your Plate over with it : The Plate being thus polished and cleansed, is fitly prepared to lay on your Varnish.

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Secũ.

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*Seft. 7. How to apply your hand Varnish on the Plate, and make it black.*

**T**AKE your Plate thus cleansed, and lay it on a chafing-dish with a little fire in it, and when it is indifferently hot, take it away, and take up some of the Varnish with a little stick, and put a drop of it on the top of one of your fingers; then lightly touch the plate with the top of your finger in severall places at equall distances; as the uppermost figure in the plate sheweth you, the same being marked with the letter O: and lay no more on one place then on another. And if your plate grow cold, heat it again as before, being very careful to keep it from dust or filth. This done (having well-wiped the fleshy part of the palm of your hand) tap it upon the Plate, till all the little spots of varnish are equally spread upon the Plate.

After this tapping, wipe or slide your hand upon the Varnish, to make it more smooth, and equal: Take great care, that there be not too much Varnish upon the plate, and that your hand be not sweaty; because the sweat mixing with the Varnish, will cause little bubbles, when it is applied to the fire, which will become little holes in the Varnish.

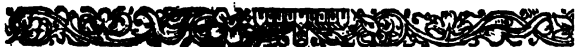
Your Varnish being thus smoothed upon the Plate, the way to black it is thus. Take a great tallow-candle lighted, which burneth clear; let it have but a short snuff; then place the corner of your plate against the wall, with the varnished side downward, as the lower figure in the Plate represents it to you.

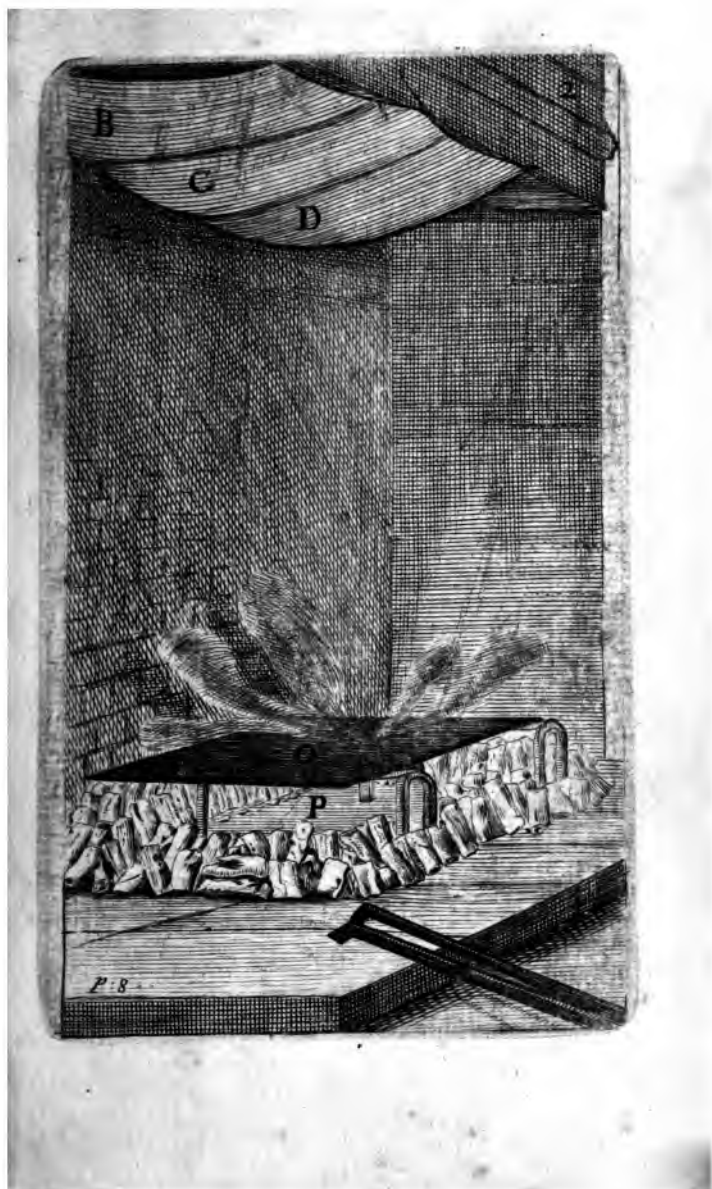
Take heed that your fingers do not touch the Varnish : then take your candle, and apply the flame the Varnish, as close as you can without touching the Varnish with the snuffe of the candle : give the flame all over, till you see it perfectly black : keep it then from dust or filth untill it be dried.

Plate 1, 2.



Señ









Sect. 8. *How to dry, or harden the Varnish upon the Plate.*

**K**indle a fire in a chimney of such chark-coles as are not subject to sparkling, and when they are well kindled, range them in a square somewhat larger than the Plate, as the letter P sheweth you. Before you place your plate to be dried, hang up a cloth in the chimney to hinder and keep off any soot or filth from falling down upon it, as you may see by the letters B C D. Then take your plate and place it in the middle of the range upon two low Andirons, as the letter O directs: this done, you will soon perceive the Varnish to smoke; and when you perceive the smoke begins to abate, then take off the plate from the Andirons, and with a stick pointed scratch near the side of your plate; and if it easily take off the Varnish, then you must lay it again upon the Andirons for a little space: Then take it off, and touch it again with your pointed stick, and if it take off the Varnish not too easily, then immediately take it from the fire and let it cool.

If the Varnish do much resist the point of the stick, then presently throw on some cold water on the back-side of the plate to cool it, so that the heat of the plate may not cause the Varnish to be too hard and brittle.

## Sect. 9.

*Sect. 9. How to chuse your needles wherewith to make your tools to etch with.* Pl. 3.

**C**hoose some broken needles of severall sizes and bignesse, such as break neat without bending, and of a fine grain. Then take round sticks of a good firm wood, not apt to split, of the length of half a foot or somewhat lesse, of the thicknesse of a good large quill: at the ends of which sticks fix in your needles, so that they stand out of the sticks about as much as you see in the figure following.

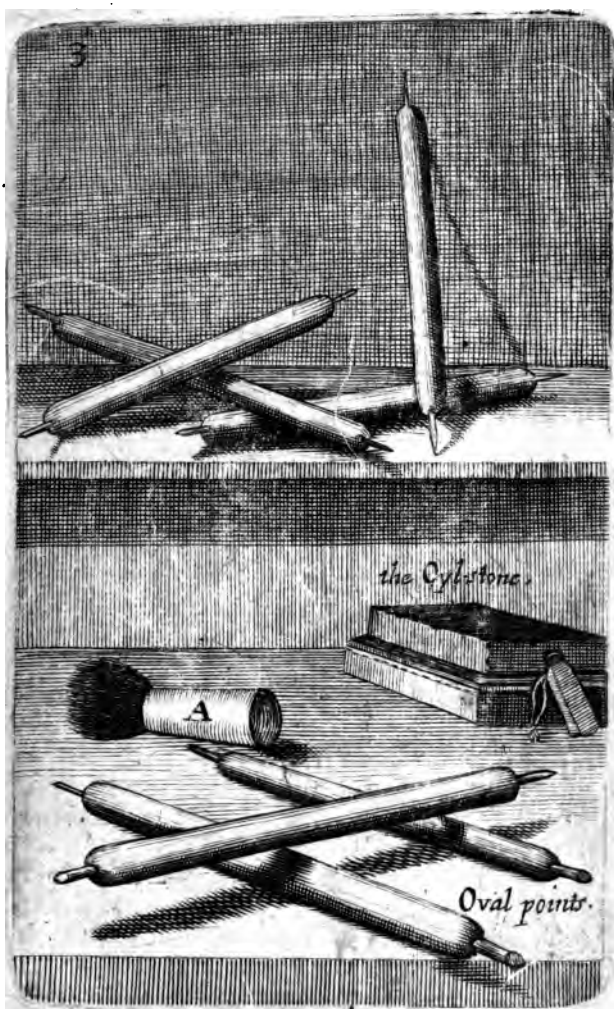
*Sect. 10. How to whet the points of your needles.*

**T**here are two wayes of whetting your needles, the one round, the other sloping.

You must have an oyl stone with a fine grain to whet your needles upon. For those you would have to be round, you must upon the oyl-stone whet their points short, not as your sowing needles are, but as the Figure shews you. For the other which you intend to make sloping, first upon the oyl-stone make it blunt, then holding it firm and steddily, whet it sloping upon one side only, till it come to a short roundish Oval, for the long Oval is not so good to work with.

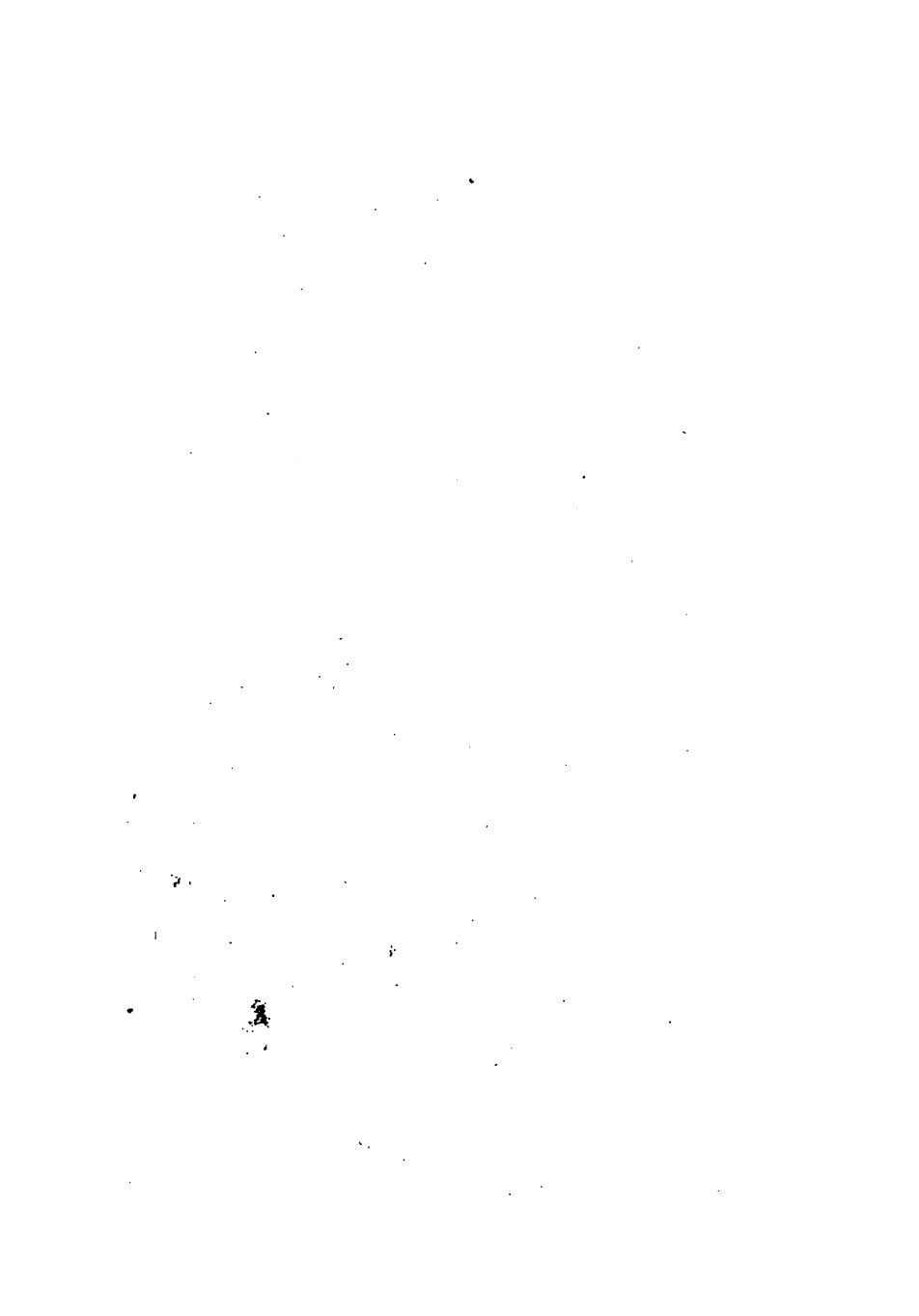
You will need a soft brush-pencill, to brush off the varnish, which you work off with the strokes of your needle, as is represented by the Letter A.

*Sect. 11.*



*the Cybertone.*

*Oval points.*



*Sect. 11. To preserve your Varnish upon the plate.*

**Y**Our plate being varnished, place it upon a low desk or such like thing, and cover that part which you do not work one with a sheet of fine white paper, and over that a sheet of brown paper, whereon you rest your hand to keep it from the varnish when you work.

When you have occasion to use your Ruler to draw streight lines, lay some part of it upon the paper, that it may not rub off the varnish. But above all things have an especial care that no filth or dust gets in between the paper and the varnish, for that will cause some holes and scratches in the varnish.

*Sect. 12. How to etch.*

**I**N etching you will have occasion to make divers sorts of lines or hatches, some bigger, some smaller, some streight, some crooked. To make these you must use severall sorts of needles, bigger or smaller as the work requires. The great lines are made these three severall wayes,

1. By leaning harder on the needle, and the point being short and thick makes a larger passage; but the point being round it will not cut the varnish clear.

2. By making divers lines or hatches, very close one to another, and then by passing them over again with a thicker needle; but this way is both too tedious and withall very difficult.

3. By making the lines with an indifferent bigg needle,

needle, and letting the *Aqua fortis* lie the longer on it. Those needles which you whet sloping with an Oval, are the best to make the large lines withall, because with their sides they cut that which the round points cannot. Pl. 4.

† Sect. 13. *How to guide your needles upon the plate.*

**Y**OU may perceive from what is said, that those points which you intend to make use of, in graving with *Aqua fortis*, ought to be whet exactly round, that they may turn more freely upon the plate. Some of those round points must be whet very sharp, that they may cut the varnish and copper more easily. If you find that your point cuts not freely and smoothly, 'tis because it is not whet exactly round.

If you have occasion to make your lines or hatchures of an equall bignesse from one end to the other, whether they be streight or crooked, as those two lines in the letters A B represents, you must, as reason will tell you, lean on your point with an equall force from one end to the other.

If you would make your strokes thicker at one end then at the other; as the second letters A B shews you, then you must lean on your point with your hand harder at the beginning, and by degrees lighter and lighter towards the end.

If you would have your strokes to be such as are represented in the third figure marked also a b, that is to say, larger in the middle then at either end, you must lean gently at the beginning, & then by degrees harder and harder till you come to the middle, and then

then by degrees lighter and lighter till you come to the end.

These three sorts of lines or hatches may indifferently serve for all manner of hatching your shadows in any design whatsoever, as appears in the figures, M N. O P. Q G R. T E V. wherein is manifest, that the shadowing is but a reiteration of the same strokes close one to another.

If you desire that your etching with *Aqua fortis* should look as like graving as may be, you must lean hard upon your needle in those places where you would have the lines appear deep and large, that is, so hard that the needle may make some impression in the copper. And by the same reason you are to lean very light on those places which you would have appear faint and small.

If it happen that you have made some lines or hatches too small, and are desirous to enlarge your stroke, you must passe it over again with a round short point, of such a thicknesse as you desire your line should be of, and lean strong and firmly on those parts of the line which you would have large and deep.

If at any time, by reason of the large lines or hatches, which you were to make, you have used an Oval point (which is the best to cut the varnish) you must afterwards, with one of your large needles whetted short and round, passe in the midst of the said stroke firm and strongly, but especially in those places which you would have large and deep.

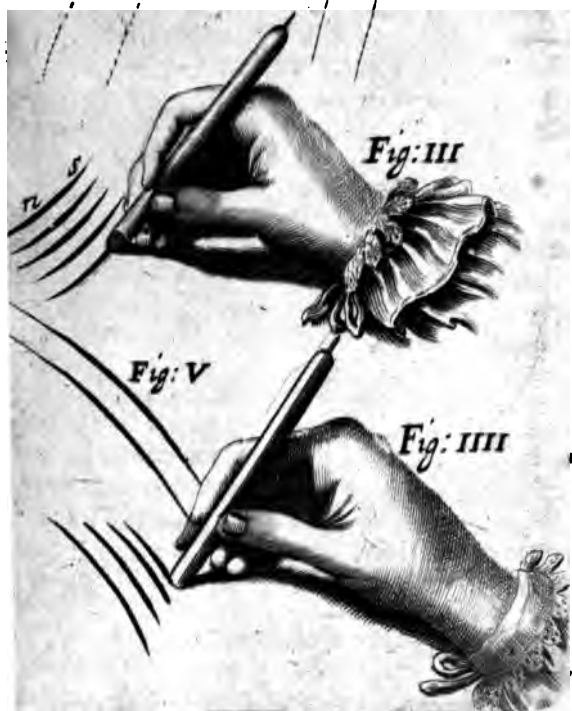


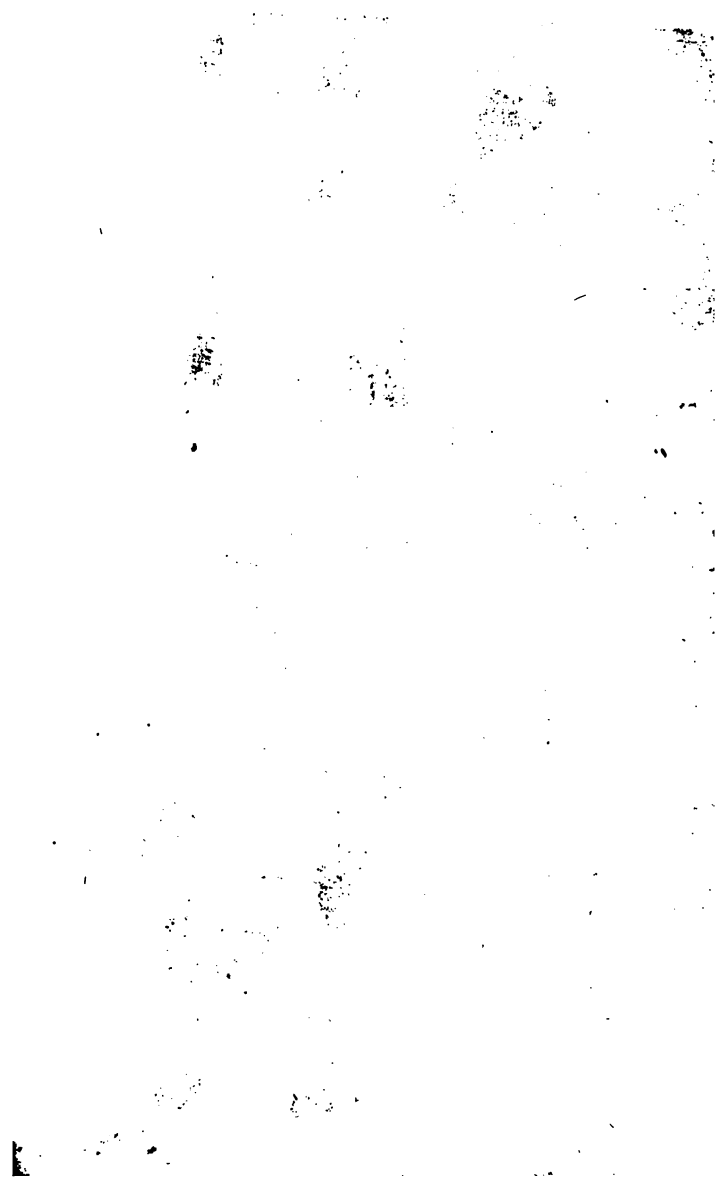
Sect. 14. *How to use the Oval points to make large strokes in etching or graving with Aqua fortis.* Pl. 5.

**Y**OU may see in the figure A B C D the form of those Oval points, and that part next to C describes the end of it, and B D the sides. The manner of holding it is much after the manner of holding a pen, only the flat side whetted is usually held towards the thumb, as is represented in figure iii. Not but that it may be used otherwise, with the face of the Oval turned towards the middle-finger as it is shewn in Fig. iv. but I have found the other manner to be much better, because that way you may more firmly and with more strength inforce your strokes.

Now to shew you how to make your strokes large and deep, and that these Oval points are the most proper for it, take notice of the two upper first and second figures, which are made the larger purposely, that you may the better apprehend what shall be hereafter spoken of it. Your own reason will tell you, that if you lean lightly in making your strokes, those strokes will accordingly be lesse deep, smaller, and more faint; for the harder you lean, the deeper and larger your strokes will be. Of this you have an example in the third figure marked r n s; where leaning lightly at the beginning, *viz.* r. and then harder by degrees to n. and afterwards lighter by degrees to s. you make your stroke bigger or smaller according to your leaning on it, as you find represented in the said third Figure.

But if you would have your strokes come very small and delicate at the end, then with the point of  
your





your small needle lengthen out your stroke, as you find it represented in the two strokes of the fifth Figure.

Some will first make their stroke with a round needle, and then paste it over again with an Oval point to enlarge it in those places which they would have deeper and bigger; but the other is the better way.

They that know how to grave after they have done etching their lines with *Aqua fortis*, may with the assistance of their graver make them more neat and deeper.

I shall only think it not amiss to advise you by the way, that in making your strokes with your Oval points, you must hold them as upright and straight in your hand as you can, and accustom your self to strike your strokes firm and bold, for that will contribute very much to their neatness and clearness. To do this the better, you must be very carefull to have your points alwayes well whetted.

In those places which you would have appear in your piece by way of Landskip, that is at the furthest distance from the sight, as also in those places which approach nearest the light, you must use a very slender point, leaning so lightly with your hand, as to make a small faint stroke. But when you come to those places which you would have more shadowed, lean so much the harder, as that when you come to eat it in with your *Aqua fortis*, you may cover most of your faint places at one and the same time, for you must know that those strokes, which you lean lightest on, do little more then raise up the varnish. So that when

when you shall apply your *Aqua fortis* to etch it, it will appear much fainter then in those places where you have leaned with greater force, though the strokes are done with one and the same needle. In-fomuch, that when you shall have cover'd the greatest part of your faint places with your mixture, those places, whereon you lean'd more strongly, will appear deepest, though they were all covered at the same time. In your working be carefull to brush off all the dust which you work off with your needles.

Sect. 15. *How to prepare your plate to receive the Aqua fortis.*

**Y**OUR plate being finished and ready for the *Aqua fortis*, brush off all the rubbidge and dust that is in the strokes. And if there happen to be any strokes which you would not have the *Aqua fortis* eat into, or any places where the varnish is rubb'd off, then melt your mixture of oil and grease which you have made, and with a pencill, bigger or smaller, according to the proportion of those places which you would mend, cover those places indifferently thick, and the *Aqua fortis* will not eat in.

This done, take a brush or pencill, or ragg, and dip it into the said mixture of oil and grease, and rub the back-side of your plate all over, to prevent the *Aqua fortis* from eating any part of it; but take heed that your mixture be not too thin or liquid, for if it be, when you cast your *Aqua fortis* on the plate, it will force it from those places whereto you had applied it.

When I find my mixture begin to grow cold, I com-

monly use to put some small quantity of it on my left hand, thereby to keep it warm, to be used as occasion shall require.

In the winter time, especially when the weather is cold and moist, before you apply your *Aqua fortis* to the plate, it will not be amisse to warm it gently by the fire, to dry up the moisture, which the plate is subject to by reason of the distemperature of the weather. Nay if it be not warmed, it may haply endanger the breaking up of the varnish, upon the first pouring of the *Aqua fortis* upon the plate.



C

Sect. 16.



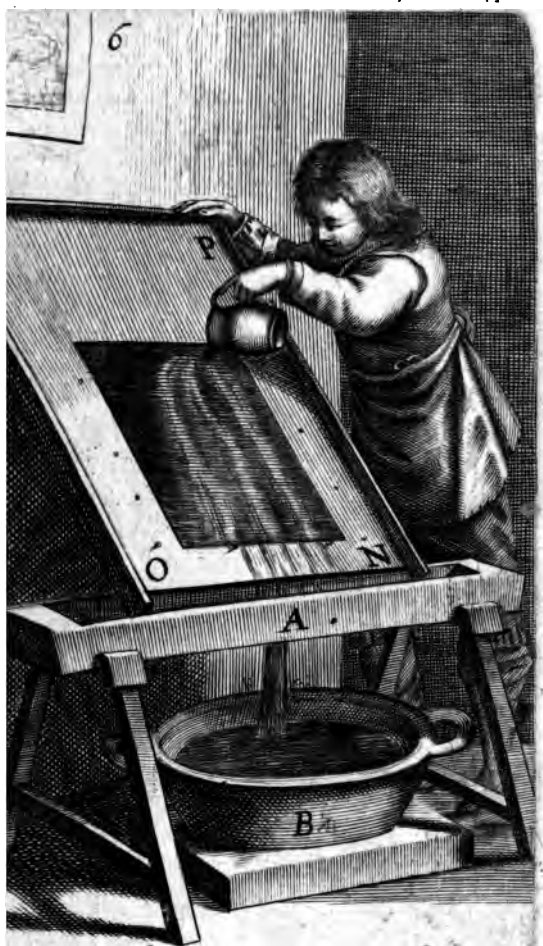
**SECT. 16.** *How to make your trough and frame to hold your plate when you would pour the Aqua fortis on it.*

**T**He Figure opposite hereto represents both trough and frame. The letter A. is one intire piece of Elm or Oak, of about four inches thick, and six inches broad, and may be of such a length as you shall think fittest for your use. You must cut this piece of wood into the fashion of a trough, as the figure sheweth you, making it a little deeper in the middle, that the water running thither may fall through a hole there made for that purpose. Set this upon a Tressel with four leggs as the figure sheweth you.

Under the hole in the trough, place an earthen pan well leaded on the inside, as you see in the figure B; and therein put your *Aqua fortis*, let it not stand too much below the trough.

The figure M N O P is one intire board of an indifferent largeness as you may judge by the figure. About the two sides and top of which board you must fasten a ledge about two inches broad, to keep the *Aqua fortis* from running off from the sides when you pour it on. The inside of this board and trough must be covered or primed over with a thick oil-colour, to hinder the *Aqua fortis* from eating or rotting the board. Place the lower end of this board in the trough leaning sloping against a wall or any other thing. In the board you must fix severall peggs of wood or nails whereon to rest your plate.

The



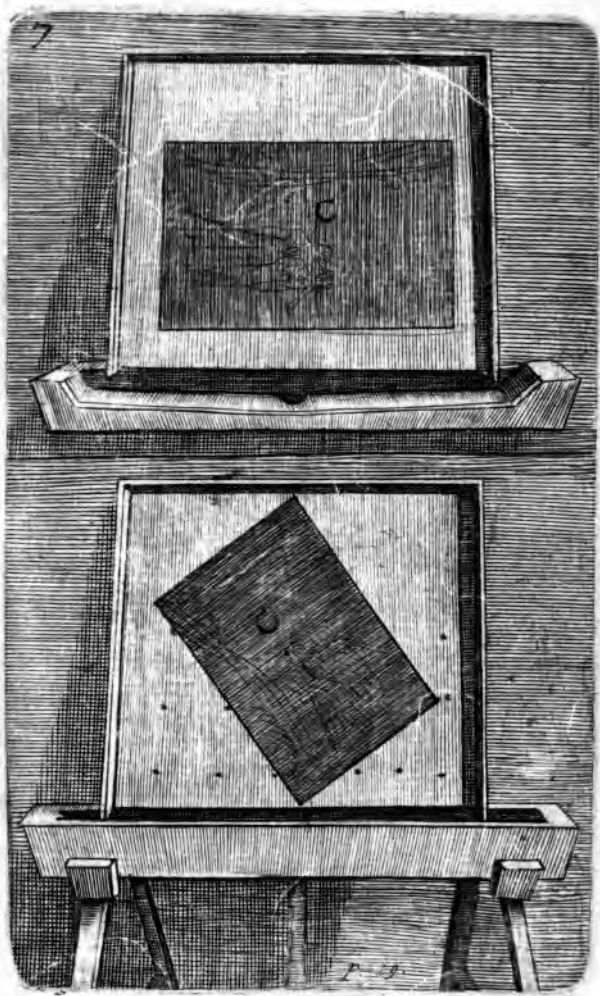
to poure y<sup>e</sup> Aqua Fortis upon y<sup>e</sup> Plate.  
 P. 18.





[illegible]

7



12/19

The figure Q describes a little earthen pot well loaded on both sides, which you must have to take up your *Aqua fortis* out of the panne, and to pour it on the plate.

Sect. 17. *The manner of casting the Aqua fortis upon the plate; as also how to cover the places, that are faintest and most remote from the eye, with the fore-mentioned mixture, as occasion shall require.*

HAVING observ'd the way of placing the plate for the receiving of the *Aqua fortis*, there remains only to consider the method you are to follow in casting it on as occasion shall require; for in some works it will be necessary to cast it on severall times, for the reasons hereafter to be mentioned. Having a sufficient quantity of *Aqua fortis* in your pan, fill your earthen pot, and pour it upon your plate, beginning at the top, and moving your hand equally so that it may run all over the plate, taking great heed that the pot touch not the plate. Having so pour'd 8. or 10. times, the plate being as in the posture express'd in the precedent figure, you must turn it crosse-ways, as is represented in the upper part of the following figure marked C, and pour on it as it lies that way ten or twelve times as before: That done, turn your plate suitably to the posture express'd by the lower part of the following figure aforesaid, that is to say, corner-wise, and as it lies so, pour thereon eight or ten times; pouring the *Aqua fortis* thus at severall times, for the space of half a quarter of an hour, more or lesse, according to the strength of the water, and nature of the copper.

For if the copper be brittle and hard, there must be the lesse time allow'd for the pouring on of the water; but if soft, the more.

And whereas you may not haply at the first be so well assured of the strength of your water, and the precise quality of your copper, it will not be amisse to give you some directions how to know both, that you may proceed according to the strength or neatnesse which you expect to find in your work. For there are some pieces require more force, and some more tendernesse then others. To know therefore the nature of your copper, and the strength of your water, that they be such as the work you intend doth require, pour of it on your plate, for the first time, as is before mention'd, for the space of the fourth part of a quarter of an hour. Then take away the plate, and cast on it a quantity of fair water, holding the pot at a good height from the plate, to wash off the *Aqua fortis*; for if it be not clean wash'd, the work will appear green, and consequently, you cannot so well perceive the operation of your *Aqua fortis*.

That done, hold your plate before the fire, at such a distance, as that, without melting the mixture which may be upon it, the fair water may be dried up. Then take a little piece of charcole, and therewith rub off the varnish in some place where the strokes are faint: and if you find that the *Aqua fortis* hath eaten deep enough in those faint places, melt your mixture, and having plac'd your plate upon a desk or easell, take of the said mixture with a pencill fit for your work, and cover therewith all those places which you desire should be tender, and free

free from any further operation of the *Aqua fortis*, taking great care that you bestow mixture thick enough on the places which you would have covered, that is, that the mixture may fill up the strokes. And it is at this first operation, that you are to cover all the faintest and sweetest places.

Having held your plate so long to the fire that the moisture is quite taken off ( a thing only necessary in the winter time ) put it again upon your board, and pour on your water as before, for the space of about half an hour, turning your plate from time to time according to the severall postures, as is before expressed. That done, wash off the *Aqua fortis* with fair water as before, and dry your plate by the fire, taking especial care that you melt not the mixture which you had before put upon it.

Your plate being dri'd put it upon the desk or easell, as before, and having melted your mixture, cover therewith those faint places and hatches that are next in point of faintness to those that you had covered before. The severall degrees of faintness in the hatches you have severall examples of in the following figure.

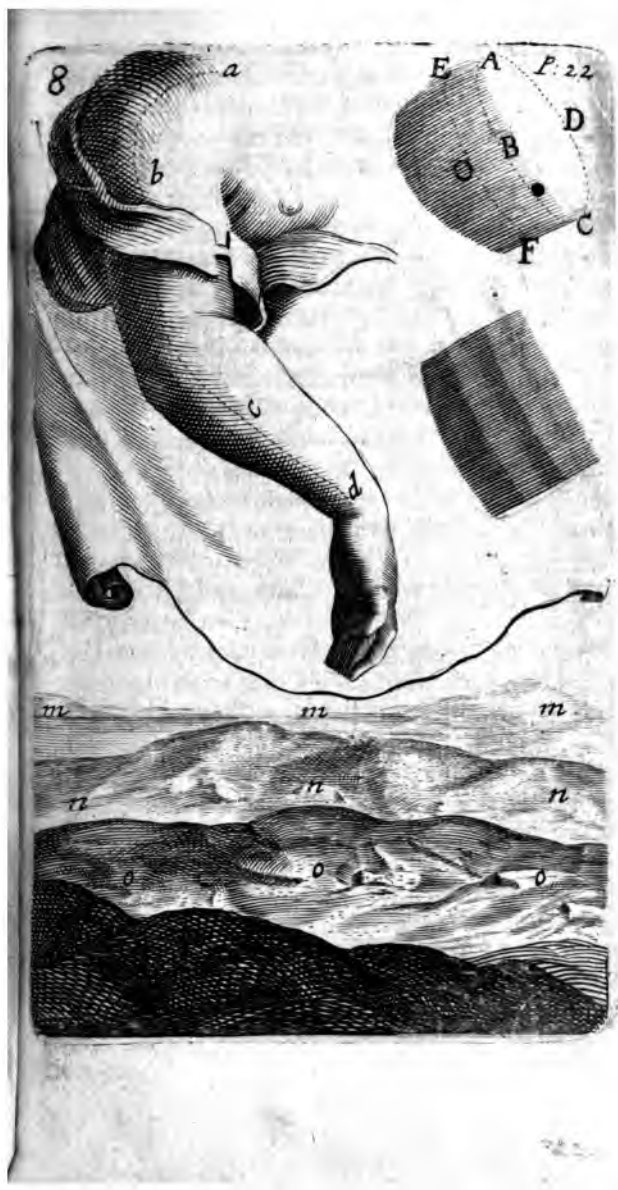
You have been directed before how to guide your needles and Ovall points, and I have told you how you were to lean strong and firmly on the places where you would have the strokes to be black and deep, and slack and lighten your hand where you would have them faint and tender, a thing which very much facilitates the operation of the *Aqua fortis*. For instance, when you have at the first time with your mixture cover'd that part which is enclosed by the line A B C D. which makes a kind of

an Oval : you come at the second time to cover that space which is between the line A B C : and the line E O F. conceiving well, that having suffered the *Aqua fortis* to eat in for the time requisite, it will have an effect somewhat near that which you expected.

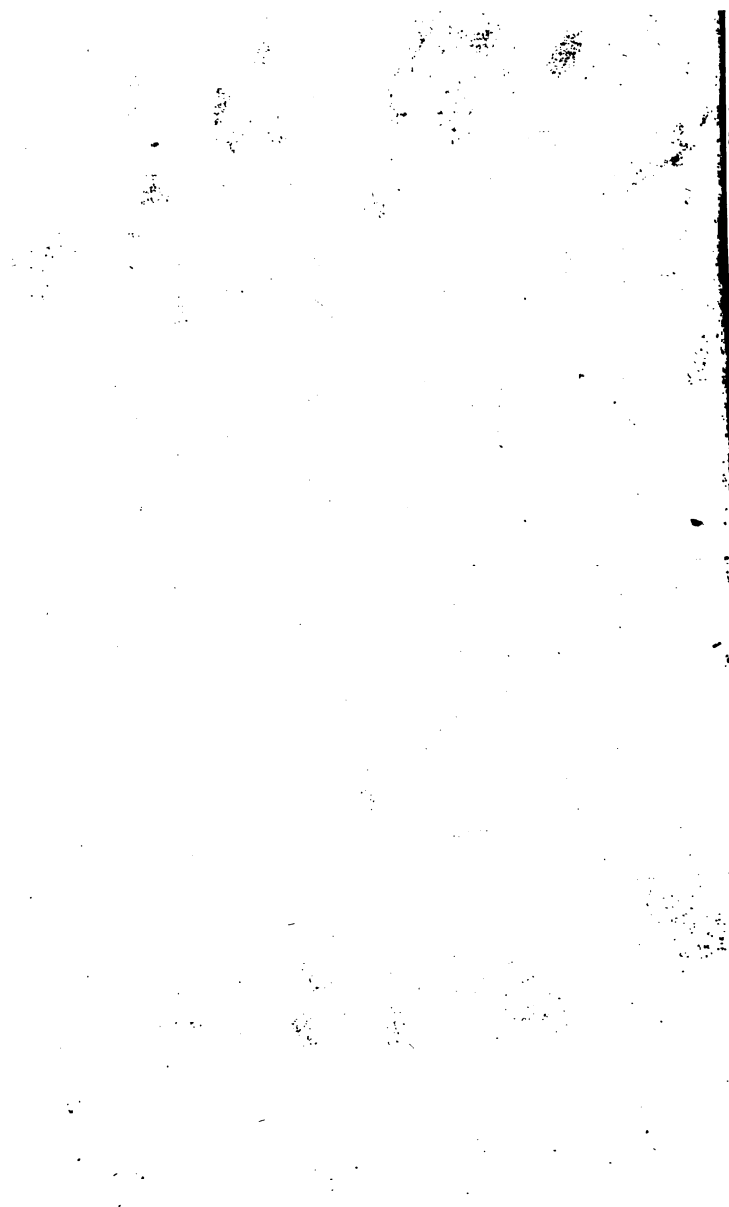
At the upper end of the plate you have the form of a woman's arm, wherein you may perceive, by the line marked a b c d; as also by the other which lies yet nearer the shadow, how the small hatches and fainter places are ordinarily covered at two severall operations, as occasion shall require; though in the forementioned example of the arm, one time covering might haply serve.

I have also thought fit at the bottome of the plate, to set down four severall pieces of ground in land-skip, the first marked m m m, is the first covered, as being the farthest of all from the eye, then at another operation that marked n n n; then that marked o o o: there being only that marked p, wherein the *Aqua fortis* eats in full and deep.

It may be objected, that the light or hard leaning on the points in their proper places in working, may make the strokes and hatchings so, as that the *Aqua fortis* may eat in answerably to your expectation, without the trouble of covering any places with your mixtnre: To this I answer, that the work will not altogether have that effect, but will be like the second plate, which I have purposely made after that manner: for though you can lean harder on some places, and lighter on others; yet the *Aqua fortis* being pour'd equally all over the plate, during the whole time, it must follow that some places







places will not be so sweet and tender as they ought, and shall come farre short of that beautifull and lively continuity which you may perceive in those lines [and strokes where you use the mixture.

If it happen, that when you dry your plate by the fire to take off the moisture, as hath been said before, that the mixture for want of care, do melt and run into those hatches and strokes where you would have the water to eat in further; wipe the place with a soft cloth, then take the crum of stale bread, and rub the place therewith till such time as you conceive you have taken off all the greasiness. This remedy is only appliable in point of extremity; for you are to note, that it is impossible to take out the grease so clearly, but that it will somewhat hinder the operation of the *Aqua fortis*. And therefore there must be the more care taken to prevent it.

Having thus cover'd your places as occasion requires, for the second time place your plate on the board aforesaid, and pour on it your *Aqua fortis* for another good half hour.

That done, wash it with water, and dry it as formerly, and cover the plates you think requires it for the third time, for you must know that the faint places are to be proportionable to, that is, more or lesse, according to the severall designs and pieces you work upon. When you have done this, pour on your *Aqua fortis* upon it for the last time, and it is at this operation, that you are to bestow more or lesse time above the precedent, according to the nature of your work.

For instance, if there be in your plate such hatches and shadows as require much depth and fulnesse, and consequently must be very black, you are to pour on the *Aqua fortis* for the space of an hour or better at this last operation alone, that is proportionably to the precedent. You may well imagine that there can be no certain rule given in generall, either as to the convenient covering of the places, or the precise space of time that is to be observ'd in casting on the water: for it is not to be conceiv'd that *Callos* pour'd as much water on his little pieces as he did on those that were greater.

I told you before, how that you may rub off your varnish or ground as occasion requires, with a charcole, to see whether the water hath eaten in deep enough: you are therefore to judge of the space of time that you are to employ in pouring on the *Aqua fortis*, by the works you are to do, and where I tell you that you may bestow an hour and better on the last operation, my meaning is, in pieces that require much blacknesse. All which notwithstanding, it is to be considered that all copper and all sorts of *Aqua fortis* not being of the same strength, nature and equality, you are to proceed accordingly.

Having therefore pour'd the *Aqua fortis* upon your plate for the space of an hour, more or lesse, as the work requires as is before said, wash it again with fair water; but you shall not need to dry it as in the precedent operations; but put it wet as it is upon the fire, till your mixture be all melted; and then wipe it very clean on both sides with a linen

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nen cloth, till you have quite taken away all the mixture.

Sect. 18. *How to take the ground or the varnish off the plate, after the Aqua fortis hath done its operation.*

**T**ake a char-cole of willow or some such soft grain'd wood, and take off the rinde of it, and pouring fair water on the plate, rub it with the char-cole with an even hand, as if you were to polish copper, and it will take off the varnish. Be carefull that no dust or filth fall upon the plate; as also that the char-cole be free from all knots and roughness, for it might occasion small scratches in the plate which it would be difficult to get out; especially in those places which are most faint and sweet. Note that you are not to use such a burnt cole as you do to polish withall.

When the varnish is taken off, the plate is of an unpleasant colour, by reason of the operation of the fire and water upon it. To reduce it therefore to its proper colour, take some ordinary *Aqua fortis*, to which add two third parts of fair water, and with a little linnen ragg dipp'd therein, rub your plate all over, and you will find it come to its ordinary colour and beauty.

That done, take immediately a dry linnen ragg, and wipe it all over so as to take off all the foresaid water. Then hold your plate a little to the fire, and pour on it a little salMad-oyl, and with the brims of an old beaver roll'd up, rub your plate well all over with it; then wipe it with a dry cloth.

This

This done, you will perceive plainly if there be any places that require to be touch'd with the graver, as it for the most part happens, especially in those places that are to be most black. For you may well judge, that when there are many strokes and hatchings one close to another, there is so little varnish between, that the *Aqua fortis* commonly takes it off, because it eats under it.

But if this happens when you cast on your water, you may presently cover those places where you perceive the varnish to break up with the mixture, it being much more easie to touch it afterwards with the graver, then when the *Aqua fortis* hath made a pit therein, which at the working of it off at the presse causes a great black patch; but after some number of coppies taken off, the said patch seems to be white, because there is not any thing for the ink to fasten on.

Having therefore in good time cover'd that part, you have no more to do but to perfect those strokes and hatchings to make them more firm and beautifull; which done, your plate is ready for the Rolling Presse.

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OF  
SOFT VARNISH.

Sect. 19. *How to make it, and the use it is to be put to.*

**T**AKE an ounce and a half of virgins wax, the best and whitest, one ounce of Mastick in tears, neat and pure, half an ounce of Spaltum; grinde the Mastick and the Spaltum severally very fine; then melt your Virgins wax in an earthen pot well leaded, and when it is very hot, strew in your beaten Mastick all over, and stir them together with a little stick till such time as you may judge the Mastick to be well incorporated with the wax, & after that strew in also the Spaltum, as you did the Mastick before, and stirre the whole mixture together upon the fire, till the Spaltum be likewise well dissolv'd and mixt with the rest, which is likely to be done in the space of half a quarter of an hour; Then take it off from the fire, and let it cool a little; Then pour in the said composition into a basin of fair water, and first wetting your hands (which must be very clean) in the water, take out the said mixture before it be quite cold, and having well moulded it to squeeze out the water, roll it up into pieces about an inch diameter, and two or three inches long.

You may if you please to make it the more free from any kind of filth, as you pour it into the basin of water, passe it through a fine linnen cloth; but it is as well not to passe it through, but after it

is moulded to wrap it up in a piece of fine linnen cloth or Taffata, two or three times double, and so use it.

You are not to put in so much of Virgins wax in Summer as in Winter. There are severall other compositions of soft varnish that might be us'd, but this I judge to be the best of any that I have found.

Sect. 20. *The manner of laying your soft Ground or varnish upon the plate.*

**H**AVING your plate well polish'd, and cleansed from grease, take the soft varnish prepared as is before mentioned, and put the said plate over a chafing-dish wherein a moderate fire hath been kindled, and heat it in such sort, that the varnish may easily dissolve as it passeth through that which enwraps it : The plate being thus heated, take the varnish cover'd as aforesaid, and applying it by the end of the roller, spread it upon the plate while it is hot, carrying it lightly over from one side to the other, untill the plate be covered thin and equally all over : this being done, and having a quill that hath a smooth feather, take it, and with the broad side thereof sweep it gently over the varnish and swiftly, to the end it do not burn. The first time, the feathered end of the quill shall onely serve to spread the varnish over the plate ; but afterwards make choice of another, the best feathered quill you have, and go it over again lightly, that the varnish may be extended very equally all over the plate and very thin ;

thin; for when it is laid on too thick, your work cannot be so fine and delicate as otherwise it would; and if the plate should cool, and consequently the varnish, you must heat it a little again, to the end that it may receive the varnish as it passeth through the linnen. Also take great care, for your better ease in the spreading of it, that your plate, and by consequence your varnish, happen not to burn: Which that you may the more easily perceive, take notice, that when it is too hot it casts it self into little clots and pumpled, by reason of over much heat of the plate.

As soon as you have evenly spread your varnish upon your plate, black it over with the flame of a candle after the same manner as I have already mentioned in speaking of your hard varnish: provided only, that the flame approach not too near; this is to be done in one case rather then in another, and that is, when having blackt it all over, you perceive that the smoke hath not entred within, by reason of its growing cold: Therefore it will be convenient to put your plate again over your chafing-dish, and you shall see, that as soon as the plate is hot, the varnish will dissolve; and by consequence, the black which the smoke hath left upon the varnish, will altogether pierce as farre as the plate.

Be carefull above all, in doing this, to have a moderate fire, and still to remove your plate, in such sort that the said varnish melt equally all over without burning.

After that, let your plate cool, and when you shall think fit to work upon it, place your design altogether after the same manner, as upon your hard varnish.



varnish, (the backside thereof being rubb'd with the dust of red chalk) excepting onely, that you must not lean so hard on with your point in drawing the out-lines of your design, lest by so doing the needle cutting through the paper should raze the varnish.

Next you proceed to work upon your plate with the same kind of points, as those which are mentioned for hard varnish, excepting those Oval points, which many that etch with soft varnish never use: Nevertheless they are very commodious, especially for the working any piece of Architecture, or making of large strokes; and it is at the choice of those that grave, either to use them or not to use them: But there is one thing to be considered, of which you are to have a very great care, and that is, how to keep the soft varnish upon the plate, for it is very apt to be rubbed or razed off, if any thing never so little violent happen to touch it: There are severall wayes of keeping it unhurt; for example, working upon the plain, or on a desk, you may have on the sides of your plate two little boards, of what bignesse you please, or two little books of the same thickness, and lay another thin board upon them, so as that it may not touch the plate, and rest your hand upon this board as you work.

There are some which work with their plate laid upon a kind of Easle, as a Painter doth when he paints; but all men cannot set themselves to this manner of working, although it is very much approved of, for many reasons which hereafter shall be alledged.

To

To work upon the said soft varnish, you must idsomely place your board upon a desk, and lay a leaf of brown or white paper upon it; is it be fine and smooth it imports not much: then your plate upon it. Afterwards take a new cloth without any kind of Seam, which has been often put to other uses, to the end it may be the more gentle and soft. Then double it once or four times in folds, and lay it upon your varnish; whereon rest your hand, as you use in the same manner sheets of paper upon hard varnish: and the reason wherefore this caution is to be observed by you, is, lest the buttons of your sleeve should rub off the varnish.

Be very carefull, that there be no dust or filth laid upon your varnish; if you chance to lay any upon your plate, wipe it lightly off with the end of your large soft pencils, considering that there is much more care to be had for the serving of soft varnish then of hard; and that is the cause which made the Author to leave it so, especially in pieces that required long time and much pains, it being much more easie to make a firm winding-stroke upon hard varnish then upon soft; for as much as the hardnesse of the varnish holds your point as it were engaged, which makes the strokes to be the deeper, and better, imitating the firmnesse and neatnesse of the strokes of a graver. Moreover, when you are at work in soft varnish, you must have a speciall care, lest any other person then a practitioner of your Art, touch or intermeddle with your plate; and if any kind of accident matter happen to drop upon it, your plate will

will be incurable: but if it should chance to fall upon hard varnish, you may then make it clear with a linnen cloth, or crumms of bread

Those that work upon soft varnish, if they put their plate on a desk or easle, they are not in so much danger of rubbing off their varnish, nor do they need so often to wipe away that which comes off in working; for as much as the plate being placed obliquely, the superfluous matter falls away of it self. I have not thought fit to make any resemblance of it, since it is not likely that any of those who intend to etch after this manner, can be ignorant how a Painter works upon an easle, there being no other difference but onely this, that a Painter useth a pencill, and a Graver his etching tools. The truth is, that the Artift ought to rest his plate very firm, especially when he is very intent upon the making of any exact strokes.

*Callos* wrought upon hard varnish after the same manner, but it was to the end that his health might be the lesse impaired, supposing that to stooping to his work (though it were never so little) would be hurtfull to him.

*Seet. 21. How to border your plate, that it may contain your Aqua fortis.*

**G**Et soft wax, either red or green; if it be in Winter, soften it at the fire; in Summer it will be sufficiently soft of it self: In the managing of it, put it round the brims of your plate, raised about half a quarter of an inch from the surface of the plate, being as it were a little rampart; in such sort, as that

that placing your plate very leuell, and afterwards pouring your *Aqua fortis* upon it, the water may be retain'd by the means of this border of wax, so as, that the water may be equally diffused all over; but before you pour it on (to prevent its soaking through between the wax and the plate), if need require, heat a little piece of Iron, and run it over on the out side where the plate closeth with the border.

Having thus bordered your plate, take common *Aqua fortis*, such as is used by the Refiners, pure and good, and mingle it with common water, being in quantity about the third part of your *Aqua fortis*; or if you have *Aqua fortis*, of which you have made former use in etching, mingle it with the pure *Aqua fortis* in stead of common water, and let the quantity be proportionable to the strength of it; then pour it gently upon the plate, in such sort as that it may remain upon it the thicknesse of half a fingers breadth all over: if you make use of the strongest *Aqua fortis*, be carefull to mingle it with the greater quantity of common water.

Then you shall see that the water will work and bubble up in those stronger hatchings that are most firmly stricken; as for those that are fainter you shall perceive them clear at first, and of the colour of the copper, the water not making on a sudden any other operation than appears to view.

Afterwards, when you shall have perceived the water to operate a small time, pour it off from the plate into some vessell which is most proper to contain it, as into an earthen dish well varnisht, or the like, then throw some fair water upon the plate, to

extinguish and wash away the remainder of the *Aqua fortis*, which was upon the plate, then dry it by the fire, as you have been taught before, when we discourse of hard varnish; and as touching your soft varnish and *Aqua fortis* of the Refiners, be careful in especiall manner to cause to evaporate that moisture, which in the Winter time is commonly between the copper and the varnish, before you lay on your *Aqua fortis*: The superfluous moisture being evaporated from it; take your mixture of oyl and grease, as is before mentioned in the beginning of this discourse of hard varnish, and therewith cover those places which ought to be most tender and sweet; and having covered them the first time, lay on again upon your plate the same *Aqua fortis* which you had taken away, and leave it on for one half quarter of an hour, or a longer time, according to your discretion; then take off the *Aqua fortis*, and cover with your mixture those next places, as you shall see occasion: And as you would have your lines or strokes to be deeper and deeper; so cover the sweeter part by degrees with your mixture, that the *Aqua fortis* may ly the longer on the deeper strokes.

Lastly, lay on yet again the aforesaid *Aqua fortis*, and leave it on for the space of half an hour, either more or lesse according to the strength of the water and nature of the work, then take it away and cast some fair water upon the plate again.

That being done, take off your border of wax, then heat your plate, so that the oyle mixture and the varnish may thoroughly melt; then wipe it well with a linnen cloth, afterwards rub it all over with  
cyl-

oyl-Olive, with a piece of old beaver roll'd up, and  
that being done, touch it over again with your  
gaver in those places where it shall be needfull.

One thing I shall advertise you of, which is, that  
while the *Aqua fortis* is upon your plate, you take  
a feather and dip it to the bottome of the said *A-*  
*qua fortis*, sweeping it along to remove the froth or  
foam which gathers upon your strokes or hatchings,  
while the water makes its operation; as also to  
give the more way to the operation of the water,  
and to see if the varnish be not broke up, which  
the bubbling of the water hinders you from dis-  
cerning.

You may also take notice that the *Aqua fortis* of  
the hard varnish, will serve excellently well to eat  
into the work made by the aforefaid soft varnish,  
and that the manner of applying the oily mixture,  
is all one with that of hard varnish, and who ever  
useth it may be assur'd, that it is much more excel-  
lent for this purpose than that of the Refiners;  
Moreover, it is not so subject to cause the varnish  
to break up, nor to many other accidents, as the  
being hurtfull to the sight, or to ones health, as  
that of the Refiners is, neverthelesse every one may  
use which of them he pleaseth.

*SECT. 22. The manner how to lay a white ground upon  
your hard or soft varnish.*

**T**Here is a way to whiten your varnishes upon  
the plate, in stead of making them black with  
a candle, which is thus.

When you have apply'd your hard varnish (as

hath been taught) upon the plate, harden it upon the fire without blacking it, yet in the same manner as if it were blackt, then let the plate cool; and having gotten white Cerusse and put it into an earthen dish well leaded, with a little Flanders Starch in it, set them upon the fire and melt them together, making them pretty hot, then being done, take up the white Cerusse, which ought to be indifferently clear, with a brush or great pencill of hoggs hair, and therewith white your varnish, laying it as thin and as even as you can, then leave it to dry, laying the plate flat in some convenient place; and if by chance in whitening it, the white be difficult to spread, you need do no more, but put among the said white Cerusse a drop or two of the gall of an Ox, and so mingle them together in the dish with your brush. And for the soft varnish, you shall need onely to do the same thing; after you have laid it upon the plate and extended it very evenly with the feathered end of your quills; Some will say, that if they black it before they apply the white upon it, when they come afterwards to grave, the hatchings will be the more black, and by consequence will appear so much the more distinct to the eye. But to this answer:

First, That when it is blackt, the white will not touch it, and that they must not venture to put so much gall, for fear of spoiling the varnish.

Secondly, That if the white should spread well, yet it would not appear otherwise then grey, by reason of the blacking of the said varnish, unless you should lay it so thick that all would be nothing worth.

The

The marking of your design upon soft varnish, is performed with the dust of red chalk (as is before mentioned) speaking of hard varnish, or with rubbing well the paper or design with the dust of black chalk or black lead, when the varnish is made white: for red chalk is most proper for a black ground.

When you shall have grav'd that which you intend upon the soft varnish, and that you go about to etch your plate with *Aqua fortis*; that which you have then to do, is to take a little fair water, somewhat more than lukewarm, and to cast it upon the said plate, and then with a soft clean sponge, or with the fleshy part of the end of your finger, to rub upon the said white Cerusse to moisten it all over; afterwards wash the said plate to take off the whiting of it, and then dry it. Lastly, you may lay on which of the two *Aqua fortisses* you please; and for the preserving of the said white varnish, while you are working, you shall onely need to lay upon it a piece of soft linnen in stead of paper, or else of Damaskt linnen.

If you shall choose rather to take away the said whiting, you must take some *Aqua fortis* of the Refiners, tempered with fair water, lay it upon the plate, dispersing it all over, this will soke and quickly eat in, after that you have also thrown clean fair water upon it, having in this manner taken away the whiting, you shall also let the water dry up, which shall remain upon it, and lastly cause it to eat into your work as I have said before.



*Se&t. 23. Another way how to lay a white upon your varnish.*

**T**AKE Cerusse of the best and grind it very fine upon a stone with fair water, that being done take gum-water, and pour a small quantity upon the stone and mix it with the Cerusse, then take a large pencill of hoggs hair or the like, provided it be not too stiff, with that pencill take it off the stone, and spread it thin all over your plate; and immediate after, take a larger pencill made of long and very soft hair, either of a Foxes tail, or Bears hair, and with a very light and gentle hand passe it all over the plate, so as to make it ly exactly even in all parts, that the streaks of the former brush may not appear, then place your plate so, that it may ly very even, and let it dry.

By the way it will be necessary to give you this advertisement, that you are not to mix too much gum with the white, nor too little; for if there be too much it will break and crack the varnish, if there be too little it will easily rub off: therefore you must be carefull to use neither more nor lesse than will just serve to binde the white upon the plate. Likewise you must have a care not to lay it too thick, for if it be, you cannot work with that neatnesse and curiosity as otherwise you may.

*Se&t. 24.*

SECT. 24. Here followeth the manner, after that your plates are eaten into by the Aqua fortis, how to touch up, or re-grave that which haply you may have forgotten, or that which you would amend or supply.

**B**Efore I make an end; I thought fitting to shew you the manner, how to touch over again many things according as need may require, by the means of *Aqua fortis*, as when it happens that having made upon your copper any thing that doth not at all please you, and that for this cause having covered it with your oyl mixture, to the end that the *Aqua fortis* should not perform its operation, or that you would add any ornaments either in Drapery, or any other thing which might be thought on, upon severall occasions. In this case therefore take your plate and rub it over well with oyl-Olive, in those places where there is any thing graven, in such sort, as that the blacknesse and foulness, which is likely to be in the hatchings or strokes may be taken away. Afterwards take out the grease so thoroughly with crumms of bread, that there may remain no grease nor filth upon the plate, nor in any of the strokes or hatchings.

Then heat it upon a char-cole fire, and spread the soft varnish upon it with a feather, as hath been said before. That which you are to take special care of is, that the hatchings, which you would have to remain, be filled with varnish: That being done, black it, and then you may touch over again, or add what you intend. And lastly, make your hatchings by the means of your

needs according as the manner of the work shall require, being careful before you put on the *Aqua fortis*, to cover with your oily mixture (as is said before) the first graving which was upon your plate; for in case that the varnish should not have entred all over, that to be sure will: In so much, that if it should happen in some places of the hatchings, there should be neither of the mixture nor varnish, the *Aqua fortis* would not fail to enter and spoil all. Having then caused the *Aqua fortis* to eat into your work, take away your varnish from your plate, by the means of the fire, as hath been said before.

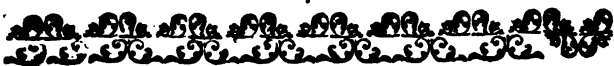
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1552



# THE ART OF GRAVING.

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*Sect. 25. The severall wayes of drawing your design upon the plate.*

**B**Efore I speak of the manner of managing and whetting your Graver, I think it will not be amisse to let you know the wayes that are used in the drawing your designe upon the plate; which must be of the same bignesse as your design or print is, which you intend to copy.

Put your plate upon the fire and let it heat a little, then take a piece of the whitest Virgin-wax and spread it thin over the plate, and with a smooth feather gently stroak it all over, to the end it may lie the more even and smooth; then let it cool. If you intend to copy a printed picture, and that you would have it to print off the same way when it is graved, with your pattern; then you must place your picture which you would grave, with the face or printed side next to your plate, waxed over as is before mentioned; and having placed it very exactly, rub the back-side of the print with a burnisher (or any thing that is smooth and round) and you will find that it will stick to the wax which  
is

is upon the copper : When you have so done, take off the print ( beginning at one side or corner ) but be carefull you take it not off to hastily, for by so doing you may tare your print or design ; and also if you put your wax to thicke upon the plate, it will be a means to cause the same inconvenience.

But if you would grave it the same way as your print or design is, then take the dust of black-lead or black-chalk, and rub the backside of your drawing or print all over therewith, and place it with that side so blacked towards the plate so waxed, as is before mentioned; and with your needle or drawing-point draw all the out-lines of your design, and you will find all those lines upon your plate; but if you desire to preserve the backside of your design from being blacked with the dust before mentioned; then take a fine thin piece of white paper of the bignesse of your design, and instead of rubbing the backside of your print or design, rub one side of the said paper with the dust or powder of black-chalk as is before mentioned; and placing it with the side so blacked, next to the plate waxed, over-lay the backside of your design upon the paper, and fix them both firm to your plate at each corner with a little wax, then draw the out-lines of your design : onely note, that you must lean somewhat harder with your needle in drawing.

There are other wayes used for this purpose, which I think needlesse to trouble you with; onely this I shall tell you, that in case you desire to preserve your design from being any way defaced by the marks of your needle in drawing the out-lines:

take

take a fine piece of white paper, and having oyled it hold it by the fire, to the end the oyl may sooner penetrate it; and having so done wipe it very dry with a linnen ragg, and place the said paper upon your design, making it fast at each corner; and you will perfectly discern your design through the paper; then with a black-lead well pointed, draw all the out-lines of your design upon the said oyled paper; when you have so done, place it upon the plate in the like manner as is before mentioned.

*SECT. 26. The forms of graving-tools, as also the manner of whetting your Graver. Pl. 9.*

**T**He upper part of this figure will shew two sorts of Graving-tools, the one formed square, the other lozeng: the square Graver makes a broad and shallow stroak, or hatch; and the lozeng makes a deep and narrower stroke. The use of the square Graver is to make the largest strokes, and the use of the other is to make the strokes more delicate and lively. But I preferre a Graver made of an indifferent size betwixt both these two; which will make your strokes, or hatches, shew with more life and vigour; and yet with sufficient force, according as you shall manage it in your working: The forms of which will appear in the I. and II. figures.

The III. figure shews you how to whet the two sides of your Graver, which is to be done in this manner following; you must have a very good oyl-stone smooth and flat, and having powred a little Sallad oyl thereupon, take the Graver, and laying one side of it (that which you intend shall cut the copper)

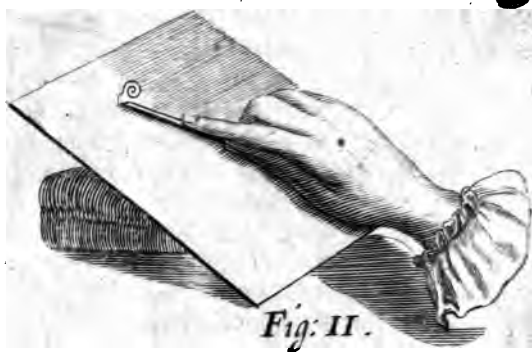
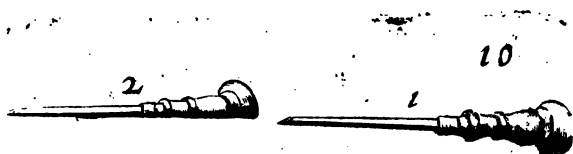
copper ) flat upon the stone, whet that side very flat and even; and to that purpose have an especiall care to carry your hand stedfast, and with an equall strength, placing your forefinger very firm upon the opposite side of your Graver; to the end that you may guide it with the more exactnesse: then turn the very next side of your Graver, and whet that in the like manner, as you did the other; so that there may be a very sharp edge for the space of an inch or better; then turning uppermost that edge which you have so whetted, and setting the end of your Graver obliquely upon the stone, carry your hand exactly even, to the end that it may be whetted very flat and sloping, in the form of a lozeng, making to the edge a sharp point, as the figure IIII. shews you.

It is very necessary that you take great care in the exact whetting of your Graver; for it is impossible that you should ever work with that neatnesse and curiosity as you desire, if your Graver be not very good, and rightly whetted.

I cannot demonstrate it so plain and fully by figures, and discourse, as I would: if you have acquaintance with an Artist in this way, you may easily understand it in a short time. ]







*SECT. 27. The manner how to hold your Graver, with other particulars.*

**Y**OU may see also that the uppermost part of this figure describes to you the form of two Gravers, with their handles fitted for the whetting. They that use this Art, do before they make use of them, commonly cut away that part of the knob or bowl that is at the end of their handles, which is upon the same line with the edge of their Graver; to the end it may not obstruct or hinder them in their graving, as the figure II. shews you.

For if you should work upon a large plate, you will find that part of your handle (if it be not cut away) will rest so upon the copper, that it will hinder the smooth and even carriage of your hand in making your strokes or hatches; also it will cause your Graver to run into the copper in such sort, that you shall not be able to manage it at your pleasure.

The third figure describes to you the way of holding your Graver; which is in this manner. You must place the knob or ball of the handle of your Graver in the hollow of your hand, and having extended your forefinger towards the point of your Graver, laying it opposite to the edge that should cut the copper, place your other fingers on the side of your handle, and your thumb on the other side of the Graver, in such sort that you may guide your Graver flat and parallel with the plate; as you may see in the IIII. figure.

Be carefull that your fingers do not interpose  
be-

between the plate and the Graver, for they will troubleſome, and hinder you in carrying your Graver level with the plate, ſo that you cannot run your ſtrokes with that freedom and neatneſs otherwiſe you may. This I think fit to give notice of in this place, becauſe the ſkill of holding your Graver is that which you muſt firſt ſetly learn, and be able to praſtiſe without pain or difficulty; or elſe you will not gain ſo great readineſſe and command of your hand, as is required in an accurate and ſkilfull Graver.



Sec



*Seft. 28. The manner of governing your hand in Graving, and other particulars.*

**H**AVING described the way of holding your Graver, the next thing is to shew you how to guide your Graver upon the plate in making of your strokes, which are streight or crooked; that you may work with the more ease and convenience, you must have a strong round leather cushion fill'd with sand or fine dust; let it be made about half a foot broad in the diameter, and three or four inches deep; lay this upon a table which standeth fast and firm; then lay your plate upon the cushion, as is described in the II. figure in the former Section.

When you are to make any straight strokes, hold your Graver as is directed in the former Section; and if you will have your strokes deeper or broader in one place than in another, in that place where you would have them deepest, you must presse your hand hardest; but especially in making of a streight stroke, be carefull to hold your plate firm and stedfast upon the cushion.

And if you make any crooked or winding strokes, then hold your hand and Graver stedfast; and as you work turn your plate against your Graver; for otherwise it is impossible for you to make any crooked or winding stroke with that neatnesse and command, as by this means you may, if you do not move your plate, and keep your arm and elbow fixed or rested on the table.

If as you are working your Graver happen to break often on the point, it is a sign it is tempered too

too hard; therefore take a red hot charcole, and lay the end of your Graver upon it, and when you perceive your Graver to wax yellowish, dip it in the water: If your Graver become blunt without breaking, it is a sign it is nothing worth.

It will be convenient for you to have a piece of box or hard wood, that after you have sharpened your Graver, by striking the point of it into the said box or hard wood, you may take off all the roughness about the point, which was caused by whetting it upon the oyl-stone. After you have graven part of your work, it will be necessary to scrape it with a sharp edge of another Graver, carrying it along even with the plate, to take off the roughness of the strokes; but in so doing take heed of making any new scratches in your work.

To the end you may better see that which is graven, they commonly roll up close a piece of a black Felt or Castor, liquored over a little with oyl-olive, and therewith rub the places graven: And if you perceive any scratches in your plate, rub them out with your burnisher: and if you have graven any of your strokes too deep, you make them appear fainter with rubbing them with your burnisher.

FINIS.

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THE  
Way of Printing  
Copper Plates.

And withal,

How to make the PRESS.

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*Advice.*

**I** Reckoned at first not to enlarge upon the manner of Printing Copper-plates, as a thing not belonging to my Calling. But several Friends having advised me to the contrary, for the satisfaction of several, it will not be amiss to enlarge upon it. To the end that those who may have Engraved Plates, and are distant from Places where this sort of Printing is used, may by these Papers have some knowledge how to make use thereof, in case of necessity; it being an Art not treated of in Publick Writings, that I know of, and which is fully necessary to set forth the effects

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fects of Engraved Plates, as well those done with the Engraver, as with *Aqua Fortis*, having been invented but for them.

This has then caused me to set down here in order, in several Figures, and with their Dimenſions the Pieces, both aſunder and join'd together, of a Preſs to Print Cuts in, and explain, to my beſt, all the Particulars I think fit, to make a good and fair Impreſſion.

And, for as much as treating of the means how to get the Preſs made, to joyn and ſet it up, and furniſh it with all Neceſſaries. I am forced to make the Plate paſs through the Rollers of the ſaid Preſs before it be inked, as alſo before I treated of the boiling of the Oyl, of the Lamp black, and of the Colours they Print with, of the Ball, of the wetting of the Paper, and how to lay the Ink on the ſaid Plate. I thought fit to give you notice, that the Diſcourſe which treats of theſe things, is after that of joyning and ſetting up the Preſs, and how to make the Plate and the Table paſs between the Rollers.

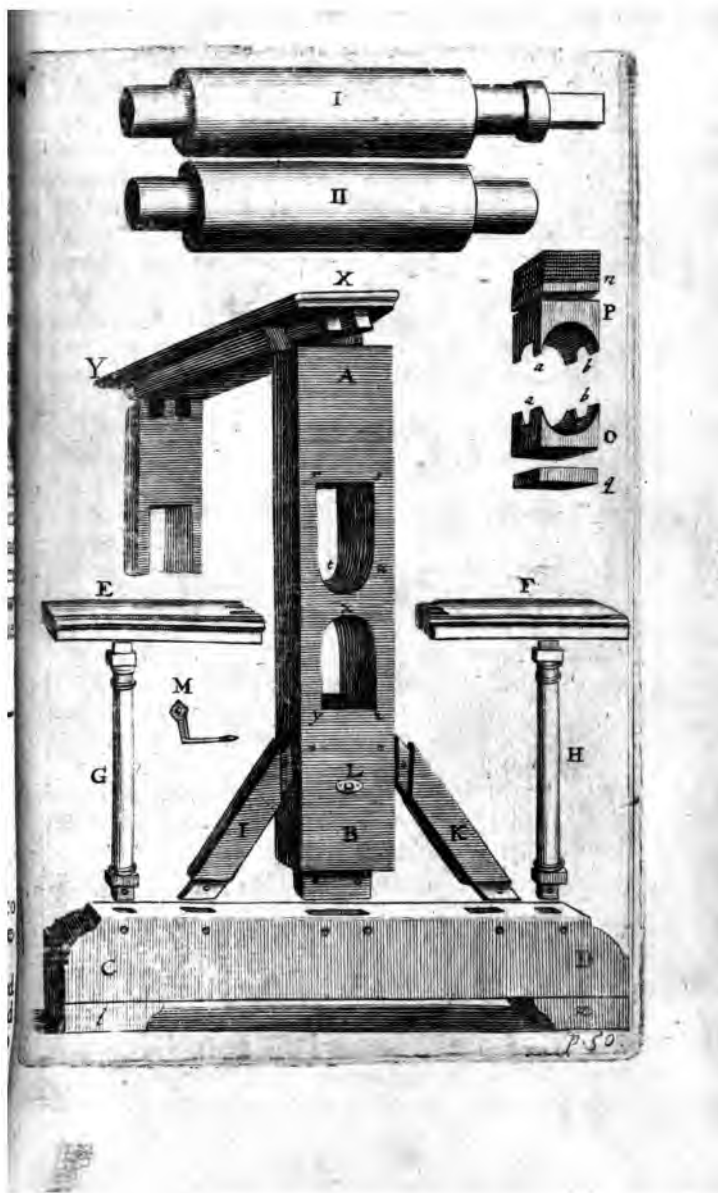
## PLATE XI.

*Explication of the Pieces that make up the Preſs to Print Cuts with.*

There are ſeveral Pieces that make up a Preſs to print Cuts with, whereof the beſt part is repreſented in Perſpective in this Plate.

Amongſt theſe Pieces there are two called the Feet, marked C D, four called *Billets*, marked I, m, which ſerve to heave up the Preſs, and to keep it ſteady.

Two







Two as the Piece A B, which they call *Jumells* or *Posts*, having each two holes cut Arch ways *r s t u*, and *x y z*, pierced quite thro' in right Angles; four like to the two P O, called Boxes; and four pieces of Wood, as the two *n q*, called *Hausses*, which are to be placed in the two holes of the said *Jumells*, to the end that the said Boxes fasten the folds of the Rollers, as it shall be explain'd in its place. The said four Boxes must be knotted as at the place *a b*, to cover with Tin the inside of the round of those Boxes, as it shall be said hereafter.

There are four of these peices, as the two I K, which serve as so many Props to the *Jumells* or *Posts*.

Four, which they call the Arms of the Press, marked E F.

Four, like the two Pillars G H, which are fastned by one end at the Feet, and at their other end to the Arms of the Press.

Then there is next the Screw, marked L, whereof there must be two to hold the cross Beam, which shall be explained in its place; then the Iron Key to shut the said Screws, marked M.

You see the piece marked X Y, which enters in like the Swallows Tail into the two Posts or *Jumelles* to keep them steady above.

Moreover you see above the two Rollers, the uppermost marked I, and the undermost marked II.

There remains still the Table, the Cross or Handle, and two little Boards which enter into the groove of the Arms, and the two other peices cut in the Swallows Tail, and the cross Beam, which shall be discoursed of afterwards.

The peices of the Press must be of good seasoned Oak, or the like, excepting the Table and the

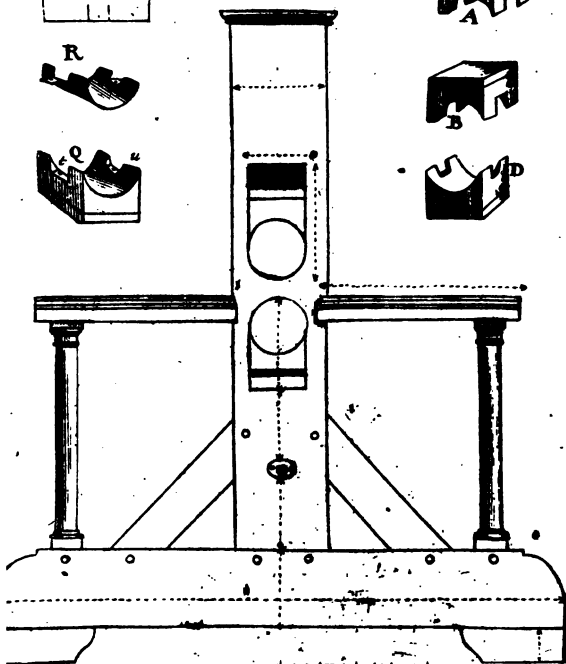
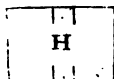
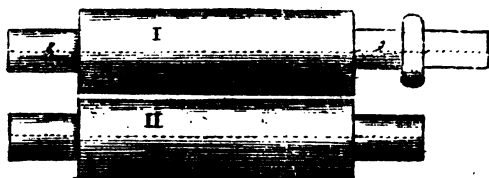
Rollers, which must be of good Walnut-tree, the like; and the Rollers of Quarters, and not round Wood: They are also made of Elm.

## PLATE XII.

*The joining of the pieces which make up one of the sides of the Press.*

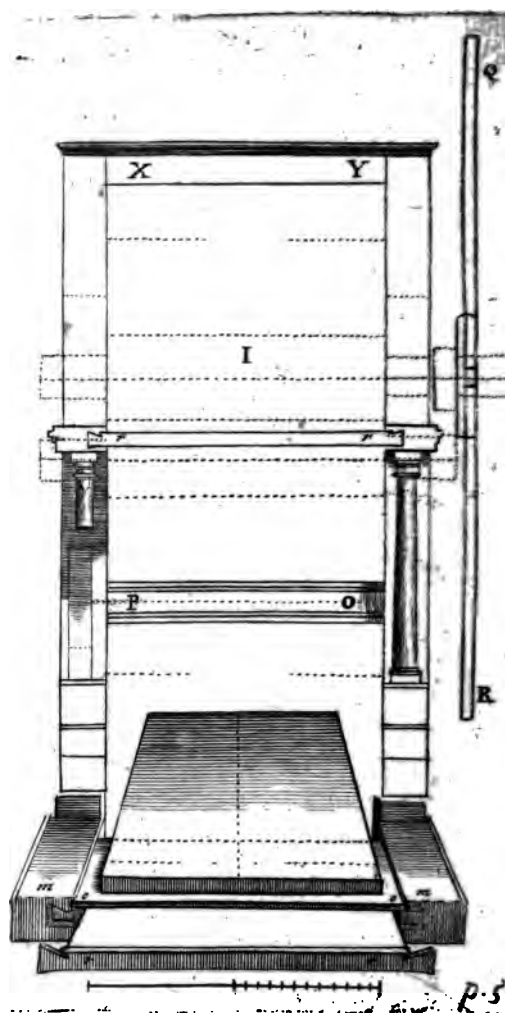
**Y**OU see in this Plate the greatest part of the piece whereof we have spoken, set together, to make up one side of the said Press; so that having made up another side equal to it in all parts, there remains but three or four pieces, which I shall describe in the following Plate, to complete the Press.

I have set down the measure to each piece, as to say a Foot, I put *pi*, to say Inch, I put an *i*, as to say Line, I put *l*, and moreover I have set at the bottom a Scale of two Foot, whereof there is divided into twelve Inches; I have again set down in this Cut, the two Rollers, and the two uppermost Boxes A B, and also the two undermost Q and D, to shew the measures thereof, and to shew the Roller *r* must be fastned into the upper arch and hole, by its hold *s*, and its other hold marked is to be put into the hole and arch of the other *P* or *Furnelle*, directly opposite to this. Then having placed a Heaver of Wood in the lower hole, as upon this Heaver one of the Boxes, so that having placed upon it one of the holds of the under Roller *r*, it graspeth the said hold *i*, you must do likewise the same for the other hold to the other *P* as you have done to the upper Roller noted *L*.





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To close, I must tell you, that you must come back to the upper Roller, to which we must put now the Boxes on the holds, and also the two Heavers, then fill up what's empty about it in the holes, as you may see in the Figure; and before you put on the Boxes you must have plated them over all four with Tin in the inside, to the end, that the holds rubbing upon them, they may not wear them out, and hinder them from moving freely; I believe that the two pieces H R, and the Box Q make them evident to your sight, without any larger Discourse.

The piece H is a Plate of Tin cut out of a fit size to preserve the hollow of the Box, which graspeth the hold of the Roller, which being folded in round, like R, must be put into the hollow of the Box, and fastned by its two little Ears Q. Remember to do the same to all four, and before you fit your Press to Print therein, you must have greased (with some old Grease) the said Tin Plates, and the holds of the Rollers.

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### P L A T E X L I I I .

*The Press seen in Front, and fitted up with all its Pieces but the Table.*

**Y**OU see by this Figure with its Measures, how the Press is fitted up, so that having made, as 'tis said above, your two *Jumelles* or Posts, and their Pieces annexed, to make the two sides of the Press, it remains but to shew you how they hold together by the means of four Pieces.

First



First by the lower piece P O, call'd *Traverse*, which is fastned to the two main Posts or *Jumelles*, by two holds and two screws.

Higher by the piece X Y, call'd the *Sommier* or cross Beam, which is also fastned to the two main Posts by a Swallows Tail at each end, and to a true Square. There are some Presses wherein 'tis applied by the Holds and Screws, as the Traverse P O.

You see likewise traced out by Pricks, how the two Rollers rest by their holds on the Boxes and holes of the two main Posts, and then the Handle fastned to the square hold of the upper Roller marked 1. The said Handle or Cross shall be represented in the following Cut, as in Perspective, to set forth plainly the shape thereof.

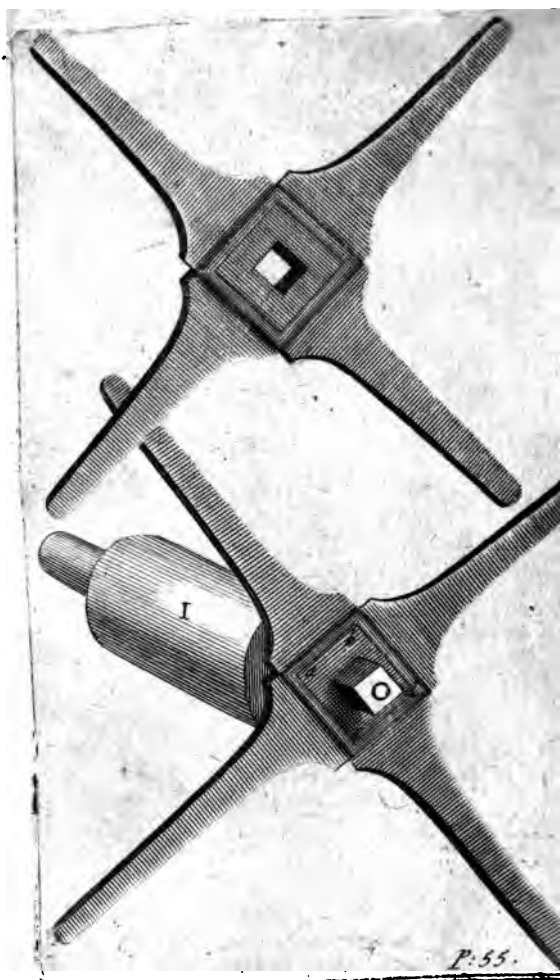
The Pillar or right Foot y, is broken only to shew you the place of the Traverse which holds to the main Post and to the Foot.

I have put under in a greater size, a piece of the two Arms of the Press, where is fastned the piece in a Swallows Tail rr, after having made the little Board oo slide into two Grooves which are at the two Arms mm: You must be sure to remember, that the upper part of the under Roller (where the Table of the Press is to pass) be higher by an Inch or there about, than the piece made with the Swallows Tail rr, and the little Board; otherwise the Table would pass over it stedily, and it must not.

The same must be done to the other side of the Press, to its two other Arms,

I have put also at the bottom in Perspective the Table of the Press, which ought to be three Foot and three Inches long, and in breadth one Foot nine Inches, six Lines or there about, and an Inch and





P. 55.

and six Lines thick, because it must be sometimes redressed.

The Rollers must be turn'd very even and parallel in all respects; and in case the upper one should split it must be bound up at the two big ends with Iron Hoops, making denches into the Wood according to the thickness of the Circles, which I have marked with Pricks at one of the ends of the upper Roller.

*The Form and Figure of the Handle or Cross.*

**Y**OU may have perceiv'd by the precedent Figures, that the Handle or Cross, like to the Wings of a Wind-mill serves to turn the upper Roller, which being squeezed hard against the Table, drags it away as it turneth; then the said Table bearing as it does on the under Roller, it makes it turn, so that the upper Roller turns one way, and the under one another.

One must be very exact to make the Table so, that passing between the Rollers, it be squeezed alike all along each of the two Superficies, chiefly of that of the uppermost; wherefore the Table must be extremely even, and smooth, and the Rollers turned in the Lathe very round, that being laid on the said Table, no Light may be seen between them.

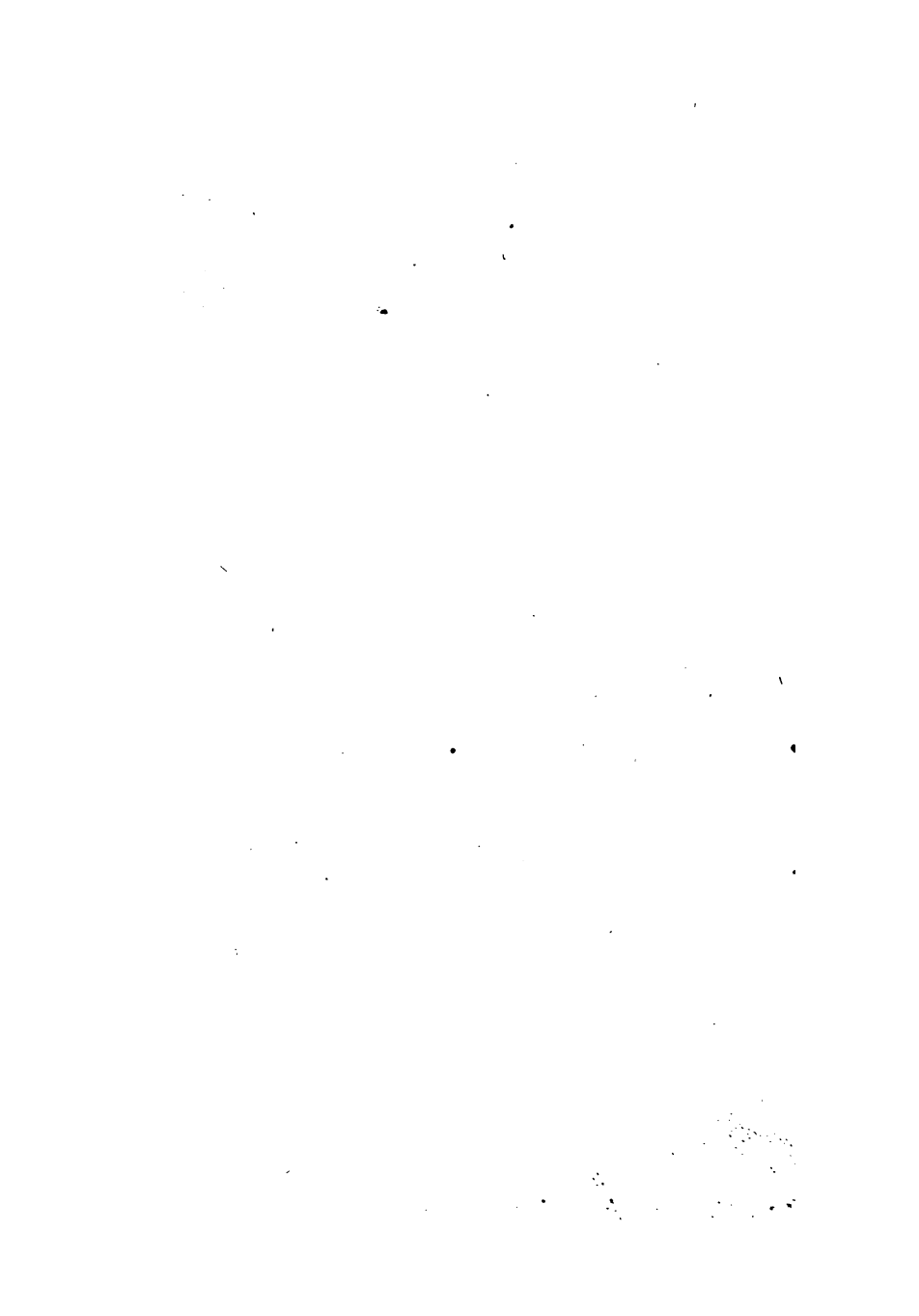
I return to the Handle made in Cross, and say, that I have set it down twice in this Cut, one, as in the Figure above, not being joynt to the hold of the Roller, and on that I have set down the Measures, then again at the bottom I have set it fastned to the Roller exactly square in *a*, as you see in the Figure, *a b c d* is a piece of Wood an Inch thick, which

which serves only to strengthen the place where the said Handle suffers the greatest stress. Your Eye tells you that 'tis turn'd with the Hand; and you will see in the second Figure or Cut that follows, how to turn it.

And in the first that follows, you will see how you must fit the Press for Printing; nevertheless, because I have room here to say somewhat thereof, and last I cannot explain all in the following Page, I will tell you beforehand,

That to fit up in general the said Table and Rollers, you must first take off the Heavers and Boxes which fasten and lye on the holds of the upper Roller, to which is fastned the Handle made in Crofs, to the end that thrusting the Table, and lifting up the said Roller, the said Table pass under, and consequently between the two Rollers, so that the smooth side be upward.

And then you must put on again the Boxes and Heavers, together with the Pasteboards, where they were; then see whether the Rollers in turning the Handle bear alike on the whole Superficies of the Table. The said Handle is taken off and put on again as occasion serves on the square hold, held only by it alone.





## P L A T E   X V .

*The Perspective of the Press seen in Front, and furnished with all its parts to Print with.*

**H**AVING fitted up the Table, as I told you before between the two Rollers, to be yet more secure of its exactness, you must lay on the Table a sheet of Paper, and over it a good large Plate, thick, all alike, then over that Plate one or two Woollen Cloths, and make all pass between the two Rollers; and if the Impression of the Plate made upon the said Sheet is every where alike, 'tis probable that 'tis fitted up well; that hinders not but that in Printing for good and all, one must look whether the Plate makes its impression all alike, and whether all the strokes engraved give an equal black on the Paper.

Now, tho' hitherto I have said nothing of the Cloths, of the Black, of preparing the Paper, how to ink or black over the Plate, and of other Particulars which are set down after. I shall not desist from shewing how to Print, supposing that the Plate is blacked or inked over, and that you are provided both with Paper and Cloths.

Supposing then that you have two or three Woollen Cloths, such as shall be spoken of afterwards: The Printer standing and placed in front before the middle of the Press, having his Feet placed on *B*, and having towards him the best part of the Table *d e f g*; he lays smoothly one of his Cloths upon it, then two others again over that, so that towards the Roller, the upper Cloth must reach a little over the undermost, and so of the other, and the like if there were more.

These Cloths lying thus smooth one over another turns the Handle, and the Roller drawing the Table



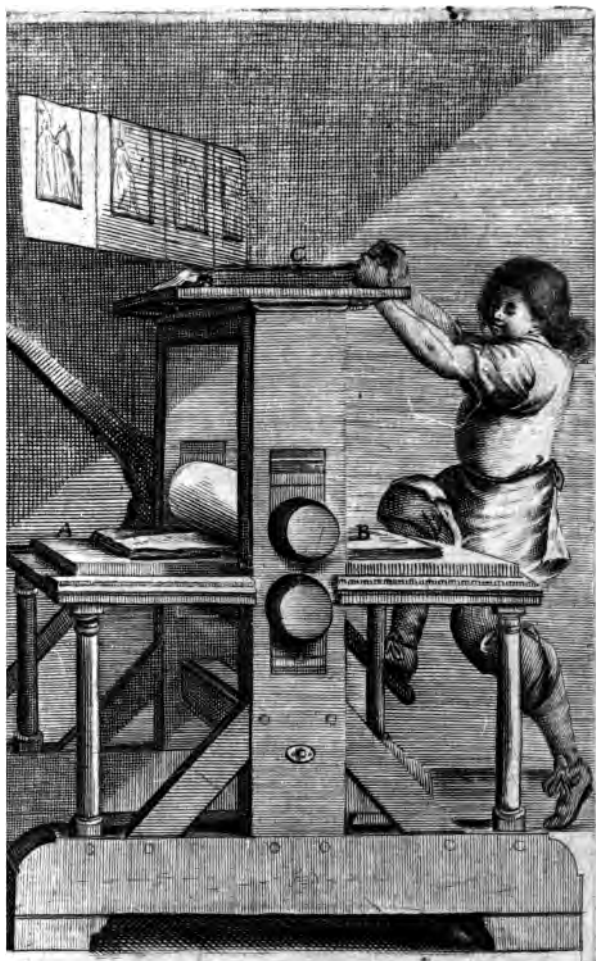
Table ariseth easily over the Cloths, and when it has got about an Inch over the uppermost, the Printer turns smoothly over the Roller all the said Cloths, as *f x b e* shews it. Then after he lays on a sheet of white Paper not wet, of the same size as that which he has wetted, as it shall be laid for Printing, and placeth it over the Table between the space *d e f g*, to compass and make the Margin of the Plate, and upon this sheet he puts the engraved Plate, ready inked and a little hot, and according to the Margin that he will give, *viz.* as the Figure shews you, the engraved side upward, as in *C*; then lays very even on the engraved side the wet sheet of Paper which he intends to Print, and over that another like sheet a little wetted with the Sponge, usually called the *blurring Paper*.

Then he overturns the Cloths on the Roller very smooth over all that, and in turning the Handle both gently and roundly, he makes all pass to the other side, as you see in this Cut.

*Perspective of the Press seen sideways, where the Printer is seen turning the Handle.*

THE Printer then turns the Handle gently and roundly, and not by jolts and jogs, that the Print comes out clear without Blurs, Spots or Wrinkles, and if the Plates are not of an equal thickness every where, he puts between the Table and the Plate pieces of Pasteboard, and thick Papers torn according to the size of the said unevenness, and when the Plate is thus past to the side *A*, so that the Roller bears not on the Papers, but only on the ends of the Cloths marked *B*; he goes to the side *A* and lifts up the Cloths altogether, overturning them on the Roller, as was said before, and next the *blurring Paper*.

Afterwards he takes with both Hands the two ends





ends of the sheet which is on the Plate, and takes it up gently least the strength of the Black peel off the Paper then looks whether all hath taken well on the Paper : if so, he puts Black again upon the Plate as it shall be told you hereafter.

And having inked it again he lays it again on the Table exactly and precisely in the same place where it was before, in laying likewise a sheet of wet Paper and over that the same blurring sheet which he had overturn'd on the Cloths, without wetting it more. Then he turns over all the Cloths very even as before, and being in A, and turning likewise the Handle both gently and roundly, he makes the Plate pass to B, from whence it came ; and then heaving up the Cloths as before, the blurring Paper and the Printed Sheet from off this Plate : Then again he inketh or blacketh the Plate, and so continues on as long as he pleaseth.

'Tis necessary to tell you, that for the convenience of the Printer, there is at each end of the Press *A B*, in some place where 'tis not inconvenient two Tables with each a sheet of Paper, on which he layeth flat one upon another the Cuts or Prints which he draws when he is at *A*, the Print which he receiveth he receiveth on the nearest Table, and the same at the *B* side on the other. And moreover he puts on the top of the Press, call'd the *Traverse*, the wet Paper on which he makes the Impression, which I have put in the preceding Figure, as at *C*.

The Printer having done his days Journey, he takes Oyl of *Olive* with either a Ball or piece of Cloth, and enoyleth his Plate, least the black that is in the Engravings should come to dry, chiefly in Summer when 'tis hot weather.

He does also the same when he has drawn as many Prints as he designed, and so, that there remain no black, then he wraps it up into Paper till he make use of it again for Printing, and keep it in a place not moist.

I must further tell you, that the same Night or next Morning, he hangs on clean Lines, and well stretched, the Prints which he drew the day before, which he had laid one upon another on the two Tables, letting them hang till the next Day; then he will lay them smooth one upon another when the Paper is dry, and then keep them pressed down a Day or two. Then handling them a little by dozens, pile them up if he can in some Chest, that both reviveth and dryeth well the Black.

*Things necessary to be known, and to be had, in consequence of the Press, as*

**C**Loths to put upon the Plates, and sometimes under, in Printing them.

Rags and Clouts to wipe away the Black.

The Ball, to ink and black the Plates with.

Lamp Black from Germany, to Print with.

The Iron Pot or Vessel, to boil the Oyl in.

Nut Oyl, and how to boil it two ways:

The Stone and Muller to grind the Black with.

The grinding of the Black.

The Pan and Grid-Iron, to warm the Plate with.

How to wet the Paper.

How to ink or black the Plate.

*The Cloths.*

**T**He Cloths must be of a Cloth well mill'd and without folds, and fine on both sides, whereof one must be first laid on the Plate, then upon that two or three others: These white Cloths must have neither Lists nor Borders, and there must be of them of two or three Sizes, according to the size of Plates and Paper on which they print. And for as much as passing them often under the Roller they are squeezd and become hard and wet also; they must

must be hung up at Night, then in the Morning before they are used, they must be wrung and rubbed, and plated like wisps of Straw to unpress them, as I may say, and make them soft, you must have of them to change, whilst those that are too hard are washed, and the Gum or Size taken from them soaked out of the wet Printed Paper into them.

*White Rags of Linnen to be washed.*

ONE must be provided with good store of old Linnen Rags, because they use many thereof in Printing.

*How to make the Ball.*

THE Ball is made of good soft and fine Linnen half worn out, and having enough of such Linnen, you must roll it up like a List, but a great deal closer and harder, for the harder the better, and make thereof like a Painters Muller. Then take good strong Thread doubled several times, and a Bodkin or Naul wherewith to pierce it thro' in several places, and pass the Thread thro' them. You must sew it fast and close, so that being about three Inches thick in Diameter, and about five Inches high, or in length from one end to another. Then you must pare it off at once, and cut it cleverly with a sharp Knife like a roll of Collered Eel, and cut the upper end roundish, like half a Ball, that you may lean and press the hollow of your Hand upon it, to black and ink steadily the Plate without trouble.

*The Quality of the Black.*

THE best Black wherewith they print Cuts, is called by the French, German Black, and comes from Frankford. Its Goodness and Beauty consists in having an Eye and Black of Velvet, and that rubbing

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rubbing it in your Fingers it squeezeth like fine Chalk or raw Starch. The Counterfeit has not such a beautiful Black, and instead of feeling soft to the Fingers, 'tis rust and sandy, and weareth out the Plates. 'Tis made of the dregs of burnt Wine.

### *The Use of an Iron Pot to burn the Oyl in.*

**Y**OU must have an Iron Pot big enough, with its Cover, which must be chosen so, that it keeps it as close as can be, for that's necessary when you put Oyl thereinto, to burn it as I am going to tell you.

### *The Condition of the Nut Oyl, and how to boil and burn it.*

**T**AKE good clear Nut Oyl and put a good quantity thereof in the Iron Pot mentioned before, but upon condition that it want three or four Fingers of being full, and cover it with its Cover. Then kindle a good Fire, and hang the pot over it, and there leave it till it hath boil'd, but be careful it neither run over in beginning to boil, nor whilst 'tis boiling, for that is very dangerous, and enough to set the House on Fire. Take therefore care in stirring it often with the Tongs or an Iron Ladle, but do it so, that being very hot the Fire may take gently in it of it self, or you may put the Fire to it, by throwing into the hot Oyl a lighted piece of Paper, when you see the Fire taken in the Oyl, take off the pot and set it aside in a corner of the Chimney, and stir always the said Oyl whilst it burns, either with the Tongs or an Iron Ladle; and this burning must last at least half an hour or more, to make the first Oyl which they call weak, in regard of that which must be made afterwards, and which they call strong: And when you would put out this Fire, you need but put the cover on your pot, and if it covereth

vereth close the Fire will be stifled, if not, do but put about it some Linnen to stop the Air. Then you must let the Oyl cool a little, then empty it out into some Vessel fit to hold it.

This done, put into the same pot again of the same raw Oyl of Nut to make strong Oyl therewith, and do the same as to the weak, excepting, that having set it a flaming into the Chimney corner, you must let it burn much longer, stirring it now and then, till it become very thick and clammy; so that having put some hot drops thereof on a dish or some such thing, and being cool, it become extreme roping and clammy, like a very thick Syrup. Some put into the boiling Oyl either an Onyon or a crust of Bread, to make it less greasie. And in case the Fire should take too violently in the said Iron Pot, throw into it a quarter of a Pint of Nut Oyl not burnt; and if you fear any Accident, instead of boiling it in a Chimney, you may boil it in the Yard.

To grind the Black you must have a great Marble Stone and a good large Muller.

*How to grind the Black to Print with.*

**B**Efore you grind your Black, you must cleanse well both your Stone and Muller. Then you take as much Black as you have a mind to Grind, for Instance, taking half a Pound, you must put to it at several times about a quarter of a Pint of the weak Oyl, according to the Black, for some sokes up more, some less; but be careful to put rather less Oyl at a time than too much; wherefore in Grinding you must pour in some now and then to grind the Black as dry as you can: Then having ground it coarsly with the said Oyl, remove it to one of the corners of your Marble, or put it on something else, and take now and then a quantity thereof and grind it over again; for one can scarce make it fine when so  
much



much is ground together. Then set apart that under ground, and when all is thus ground, put it upon the Marble, and then mix with about the bigness of a small Hen's Egg, or thereabouts, of your strong Oyl; when all is well mixt together, put it into an Earthen Porringer well glazed, and cover it with a Paper, to keep out all filth. And thus your Ink is ready for Printing, and to black therewith the Plate.

You must also know, That for Plates worn out, or which are not engraved deep, there must not be so much strong Oyl in the Black; all must be done with discretion.

Above all, the Printer must be careful to Print with good Black, and to grind it well; for if the Black be either coarse or ill ground, besides that the Printing therewith is naught, it both weareth out and spoileth the Plates. As also that the Oyls be well ground and made up into a Syrup, because if thin the Black remains behind in the Engravings, and none but the blacker Oyl marketh on the Paper, which is good for nothing for several Reasons: But the Black being well delay'd with the good Oyls, 'tis so incorporated with them, and they with it, that they must of necessity stick both on the Paper.

*The Pan to hold Charcoal with its Gridiron over it.*

**Y**OU must have an Iron Pan big enough, by reason that some Plates are large: Next, a kind of Gridiron to lay over the said Pan, to uphold the Plate, when warmed to be blackned, and to give Air to the Fire of the Pan, lest it be smothered and also for the conveniency of small Plates.

The Fire in the Pan must not be great, but rather midling, and covered over with a few hot Ashes.

How

*How to wet the Paper.*

**T**O wet the Paper you must have a great flat kind of Tub half filled with clean Water, and moreover two strong Boards or Planks with Barrs on behind, of the bigness and size of a Sheet of the said Paper spread open. One of the said Boards must be barr'd behind, that so the Paper lying upon it, you may thrust your Fingers between the Board and the Plate it lyes on, both to take it up, or to lay it easily in another place.

You take up then with both your Hands five or six sheets of the Paper thus spread, by the two sides, and draw them thro' the said Water twice or thrice, according as they are more or less gummed, from one side to the other very even, to prevent all foldings: Then lay them thus together very even on one of your Boards on the smooth side; and do the like with all the Paper you wet, lying thus wet parcel upon parcel on this first; then lay the smooth side of your other Board on the said Paper, so that it be all enclosed between the two Boards. Then again lay upon the uppermost Board something very heavy to leaden it, and by this means make the Water soak into the said Paper, and drain away what is superfluous. Leave it thus layden till you come to print it.

The said Paper being thus wetted over Night, is ready the next Morning, and when there is more wetted than could be Printed, that which remains must be put together with the next to be wetted over Night, and the next Morning take of it the first: Strong and well gum'd Paper must be more wet, and the weaker and less gum'd less.

*How to Ink the Plate, to make it pass afterwards on the said Table of the Press, between the two Rollers for Printing,*

**H**AVING your Plate wholly Engraved, filed and fitted ready to Print with, you must lay on the wrong side on the Gridiron or Pan where the Fire is, making it pretty warm. Then with a clean Rag you must take it by one of the Corners and lay it flat on the Table very steady; and taking the Ball which you made before, and with the Black which you prepared, you carry it to your Plate, and there sliding, pressing, dappling in sundry ways the said Ball, over all the Engraved Surface of the Plate, you make the Black enter and pierce into all the Strokes: And if you ink with a new Ball, you must take three or four times more Black than if the said Ball (after much working) had been filled and soaked before.

Remember always to keep your Ball in a cleanly place, that neither dust nor filth may stick to it. For in blacking that would make scores upon your Plate. As also when after Printing and Discontinuation, it happens that the said Ball becomes hard by reason of the black dried upon it, you must cut off some Rolles, and do as you did before.

Having then made the Black enter into all the Engravings of your Plate, you must take another Rag, besides that which you hold in your Hand, and wipe off therewith lightly the courfett of the black which is on the Plate, and even that which may be both about it, and that place of the Table where you inked it, so that there remain no black; then laying aside the Rag, and posing your Plate upon the Table, you must wipe well the hollow or palm of your Hand, with the clean Rag in your other Hand, chiefly the fleshy side under the little Finger. Then you pass boldly in wiping and sliding

ing the said palm of your Hand, and chiefly the fleshy part over the Plate, sometimes longways, then cross ways, wiping afterwards the said hollow of the Hand with the clean Rag which you hold in the other, wherewith you hold steady the Plate against the edge of the Table, as you pass the flat of your Hand over it. Now, by this means you take away the remnant of the Black which is superfluous, there remaining but what is necessary, which is in the Engravings. Seeing then that there is neither Black nor Spot on the Plate, in the places where there is nothing engraved, and which consequently ought to be as white as the Margin of the Paper, when the sheet is Printed; you must wipe the edges and thickness of the said Plate, to the end that all may come out clear on the Paper, and having done this, you must lay again your Plate on the Gridiron a little, and when 'tis become a little warm, you must take it up on your Hands, having wiped them well first.

And take care not to touch it but only on the backside and the edges, and the corners on the engraved side, that you may not fully it. Then lay it on the Table of your Press, as I told you in fitting up the Press.

It remains to tell you, that you must be careful not to have that Hand sweaty which wipes the Black, as also that the Clout or Rag wherewith you wipe of the courser may serve several times, provided it grow not hard; and as for the other which serves to wipe the palm of the Hand, there are occasions where one must change it much oftner, and have clean ones now and then. Moreover you must have one ty'd before you like an Apron, to wipe your Fingers when you take the wet Paper to lay it over the Plate, and after it is Printed to take it off from it.

There are many other things to be observed which

would be too long to rehearse ; but the Judge those that will read these Papers, and they would practice this Art may supply.

Only I will tell you, that there are necessities, where they lay Cloaths first of a Table of the Press, and over them a blurring and then the Paper, Pasteboard, Satin, or thing you Print upon ; and turn the Engraving of the Plate downwards, then two or three over it to prevent the bending of the Plate, that it spoil not the Roller when they turn Handle, and all pass and print as before. done so when necessity requires it, as in the printing of Satin Prints, which were the occasion of mine to do what I shall tell you afterwards.

One may also Print Plates with many other of Colours well ground and delay'd, as with the same Oyl of this Black, for brown Colours for light ones with other thick Oyls purify'd.

And forasmuch as I found once in Printing there was difficulty to make good thick Black on either Gold or Silver apply'd on the Pasteboard, &c. I have thought that they might happen to others, and to prevent it, mixing with a portion of Black as big as half a spoonful of Oxes Gall delay'd in Vinegar and common Salt, and remember delay this Black with the Gall, but as you find as once in two hours, otherwise 'tis spoil'd.

Now as concerning the Notion which came into my Head by occasion of the Satin Prints of Colours. That put me in mind to do quite contrary to those who Print in Water Colour commonly call'd *Washing of Prints*. For, as they lay the Colours on the Printing with the bethought my self to have that impression in  
*hours,*

Suppose that you have a Plate ready Engraved of a Picture that you would have cloathed of two or three Colours. For Instance, with a grey Hat, the Hair brown, a red Cloak, the Coat and Breeches of a Colour, the Stockings of another, &c.

First, you must have another Plate of Copper, fitted and filed of the same size as that, so that being laid upon it, it fits, and is on all sides suitable to it, and having varnished it with a hard white Varnish, as before; and taking an impression of the Engraved just newly drawn on a Pastboard, or very thick Paper, and moistned a little, and put immediately the Plate Varnished white on the said Impression, very exactly where the Engraved Plate hath made its Impression together, on two Cloths laid smoothly on the Table of the Press, then two or three other Cloths more over the said Impression and Plate, and make all these together pass between the Rollers; then you shall see that the Figure first imprinted on the Pastboard, will have scored out its Figure on the varnished Plate, by way of a Counter-proof, whereof hereafter.

Then you must Engrave on the varnished Plate with a point very small the outward Lines of the Hat, Cloak, Coat, and other Particulars, and sink them a little with the *Aqua fortis*. Then you must take off the Varnish and draw Prints thereof on very white Pastboard, or thick Paper allumed, or such other things something thick, after you have moistned them a little, by laying them in a Celler a Night or so, or between wet Papers. These outward Lines being printed and dry, you must lay on Red on all that space that comprehends the Cloak, and wash with a grey Colour all the space for the Hat, and so of the rest. This done you must put the said Pastboard thus coloured, as I said, to make it  
moist.

moist. Then you must take the first engraved Plate; having inked it, you must put the said Pasteboards coloured on the Cloths, and the said Engraved Plate of the size it ought exactly in the Inking, which the Plate of the outward Lines only hath made, then two or three Cloaths over it, and make all pass through the Rollers. This done, you will see that the Plate will have Imprinted on the said Colours, in making them far more smoother and fairer than the ordinary way of washing Prints.

Before I close, I will tell you what the Printers call a Proof and Counterproof. Proof is the first, second or third Print which they draw of a Plate that has not yet Printed, or of those which they set a going. The Counterproof is made with the said Proof thus, *viz.* That having drawn the Proof put it smooth and all wet the wrong side on the the Plate which made it; then they put upon that Proof a Sheet of Paper wetted, then again the Blurring Paper over it, and lastly the Cloaths. Then they pass all these together between the Rollers, and having taken up the said Sheet, they find that the Proof has made a Counterproof on the said Sheet of Paper. This is usually done to see better how to correct, because the said Counterproof is according to the Draught, *viz.* turn'd the same side.

When it falls out that the Black is dry'd in the Engravings of the Plate, it must be boil'd with Ashes, or lay the Plate the wrong side outwards on two small Andirons, as when they boil the hard Vernish, and put upon the Engraved side of the Plate a Finger thick of fine sifted Ashes delay'd with Water, then with any sort of Paper or lighted Straw make a Fire under the said Plate, in heating it all over, so that the said wet Ashes boil; and having thus boil'd the said Ashes, it will have drawn and delay'd the Black in the Engravings. Then you must throw Water on the said Plate, till none  
of

the Ashes remain, taking care in the wiping ereof that none remain there, for that would make scratches therein.

The Printer is sometimes forced to allum his Paper, and to this end he dissolves Alum in Water on a Fire, then steeps his Paper therein instead of common Water.

*Monsieur Perrier's New Invention.*

Sometimes since Monsieur Perrier, a Burgundian, one of the best Painters of the Times, shew'd skillfully on gray Paper, something brown, Figures rose outward Lines and Etchings were printed with Black, and the Lights with White, all after the way of *Camayena*, which was a thing that seem'd it only new, but beautiful also withal. I that had mind to find out the way how he did it; and having well considered upon it, methinks one must have two Plates exactly of the same size, and exactly fitted to each other. On the one must be wholly Engraved what you desire, then Print it on pasteboard or thick Paper with Black, as I have said before for Printing Colours; and having Varnish'd the other Plate, as I said before, and laying the varnish'd side in the place, and the Impression which the Engraved Plate has made, by imprinting on the said Pasteboard or Paper, and pass it afterwards, as in Printing, between the Rollers, the said print will have made its Counterproof on the said varnish'd Plate. After which must be Engraved thereupon the Lights, and make them deeply Engraved by the *Aqua fortis*. The same thing may be so better done by Graving with the Engraver.

Now this done, the greatest difficulty I find in this, to find both Paper and Oyl which makes not the White Yellowish nor Brown. Hitherto the best is, to get Oyl of Nut made very White, and extract it without



without Fire; then to put it into two Vessels Lead, and leave in the Sun till it grows thick: weak Oyl mentioned before; and for the strength you must leave one of the said Vessels much longer expos'd to the Sun.

Then again you must get fine white Lead, and grind it with the said Oyl very dry, and wards incorporate it well with the thick Oyl, as do the Black. Then having Printed the first Plate Engraved, with Black or other Colour, on the Pastebord or thick Paper, you must let the Image dry well ten or twelve Days. and then, having made the said Papers or Pastebord very moist, must fill up the Plate of the Lights with the White, as you do the others with Black, to fill with; and having wip'd it well, lay it on the Pastebord or thick Paper, so that it be exactly to the mark or sizing made by the first Plate into the said Paper or Pastebord, being careful not to turn it the wrong way. Being thus fitted, and a little hot, pass it between the two Rollers with the Cylinders both over and under it, as I said of the Impress with Colours.

For a need, one might Print with the said white *Massicot*, and other light Colours, instead of white.

Since I writ the Chapter concerning the Varnish, I am told, that in *Italy* they make use of *Linseed* Oyl instead of *Nut* Oyl, to make their Varnish, and that the best Varnish is made at *Venice* and *Florence*, and is sold at the *Druggers*.

FINIS.



~~170-9~~



